Medical Deposit (29)

TEN GOLD MEDALS.

REGISTERED **Maltine,** TRADE MARK.

Obtained the only Gold Medal for Extract of Malt at the International Health Exhibition, London, 1884.

Maltine is the only Extract of Malt made from Wheat, Oats, and Barley.

As a Food.—"The greater value of this combination is apparent, as Wheat and Oats are especially rich in muscle- and fat-producing elements."—*British Medical Journal.*

As a Digestive Agent.—"Maltine contains from three to five times as much diastase as any other Extract of Malt."—Prof. ATTFIELD.

PREPARED ONLY BY

The Maltine Manufacturing Co., Ltd.,

24 & 25, HART STREET, BLOOMSBURY, LONDON.

CARNRICK & CO.'S "MALTOLINE."

A concentrated extract of the best English Malt in chemical combination with pure Norwegian Cod Liver Oil and Hypophosphites of Lime, Soda, and Iron.

Each fluid ounce contains Calcium Hypophosphite, 2 grains; Sodium Hypophosphite, 2 grains; Iron Hypophosphite, ½ grain.

CARNRICK'S **"MALTOLINE"** will be found easy to administer on account of its agreeable flavour and palatability. The hypophosphites are kept in solution by a slight excess of hypophosphorus acid. Both the salts and the oil being intimately incorporated in a malt extract of substantial, but not viscid consistence, it forms a stable compound that will keep well under all ordinary conditions.

CARNRICK'S **"MALTOLINE"** combines the starch-digesting activity of diastase, the valuable digested nutriment represented by the carbohydrates of the malted grain, the fat-forming properties and alterative action of cod liver oil, together with the tonic and restorative influence of the hypophosphites.

Embodying these valuable features in a concentrated and palatable form, CARNRICK'S **"MALTOLINE"** will be found a very useful dietetic and therapeutic auxiliary.

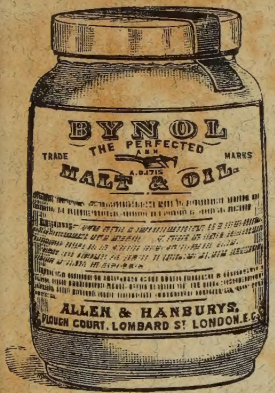
CARNRICK & COMPANY, Ltd.,

24 & 25, HART STREET, BLOOMSBURY, LONDON.

SHL
WITHDRAWN

"A perfect combination of Malt Extract with Cod-Liver Oil."—THE BRITISH MEDICAL JOURNAL.

Bynol "The Perfected" MALT and OIL.



This preparation being an intimate combination of ALLEN & HANBURYS' Malt Extract with Cod-Liver Oil of their own manufacture, presents many notable advantages.

It is absolutely *free* from any *unpleasant taste.*

It can therefore be taken by *invalids* having the most *fastidious palates.*

It contains the *oil* in such a *fine state of division* that the particles cannot be seen under the microscope, and will remain in this state for months.

It possesses all the high *diastasic powers* of Malt, and thus materially aids the digestion of amylaceous foods.

It ensures, so far as can be done, the digestion of the cod-liver oil by perfectly emulsifying it.

There is no better method for administering Cod-Liver Oil and assuring its effectual and easy assimilation than by combining it with Extract of Malt. In addition to the properties of Cod-Liver Oil, which are too well known to be enlarged on here, **BYNOL** possesses all the high diastasic powers of Malt in perfection, and thus materially aids the digestion of all foods containing starchy or farinaceous matters. **BYNOL** is thus a combination of valuable food-stuffs which actively assist digestion, and is of the greatest value in Consumption, Wasting Diseases, Anæmia, Dyspepsia, and general weakness in convalescence from severe illnesses. It is unrivalled for children, who will regard it as a sweetmeat rather than as a medicine. During the winter **BYNOL** will be found of especial service in warding off the liability to *colds and coughs*, and it can be taken without the slightest repugnance during the summer months even by the most delicate.

OPINIONS OF THE MEDICAL PRESS.

THE LANCET writes:—"Globules of oil cannot be distinguished. The Malt Extract is well prepared, and the diastase active. The flavour is very satisfactory."

THE HOSPITAL GAZETTE writes:—"It is far in advance of any emulsions of this drug. *i.e.*, Cod-Liver Oil.)

THE MEDICAL PRESS AND CIRCULAR writes:—"A perfect combination of the Malt Extract and Cod-Liver Oil prepared by this Firm."

Put up in Jars, 2s. and 3s. 6d. To the Medical Profession, 18s. and 32s. per doz.

SAMPLES FREE TO MEDICAL MEN ON APPLICATION.

Allen & Hanburys, LONDON.

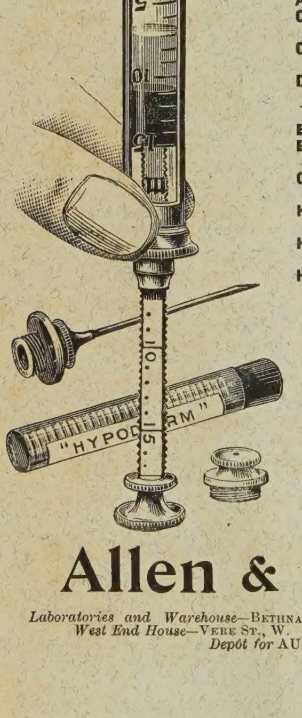
Laboratories & Warehouse—BETHNAL GREEN, E. *City House*—PLOUGH COURT, LOMBARD ST., E.C. *West End House*—VERE ST., W. *Cod-Liver Oil Factories*—LONGVA and KJERSTAD, NORWAY. *Depôt for* AUSTRALIA—484, COLLINS ST., MELBOURNE.

See also Pages ii, iii, 419.

"Hypoderms"

Compressed Tabellæ of drugs for HYPODERMIC MEDICATION.

For convenience in administering a great variety of drugs by hypodermic injection our HYPODERMS will be found unsurpassed, and have within the last few months been still further greatly improved. They dissolve in water almost *instantaneously, no trituration* or *heat* being required. The dose is exactly known. The drug is in its purest form. Provided that the Syringe and Needle are kept quite clean, and that distilled water is used, no subcutaneous irritation or inflammation can follow their use. The drug preserves its active properties unimpaired for any length of time.



The *Lancet* writes: "The following advantages claimed for the 'Hypoderms' are found to be perfectly true—they dissolve easily and rapidly in a minimum of water without the aid of heat or trituration, yielding at once, if preferred, in the syringe itself a uniform solution of the drug; whilst, of still greater import, they contain, according to analysis, the exact amount of active ingredient they are stated to contain." (See rest of article for exact analysis of Hypoderms, June 6th, 1891).

A FEW OF THE MORE IMPORTANT ARE:—

Acidum Sclerotinicum £r. ½.
Aconitina gr. $\frac{1}{100}$.
Apomorphinæ Hydrochloras gr. $\frac{1}{50}$.
Atropinæ Sulphas gr. $\frac{1}{50}$, $\frac{1}{100}$
Caffeinæ Sodio-Salicylas gr. ½.
Cocainæ Hydrochloras gr. ⅛, ¼, ½.
Digitalinum gr. $\frac{1}{100}$.
Digitalinum gr. $\frac{1}{100}$.
Morphinæ Sulphas gr. ¼.
Ergotininia gr. $\frac{2}{100}$, $\frac{1}{100}$.
Eserinæ Salicylas *vide* **Physostigmina.**
Geleminæ Hydrochloras gr. $\frac{1}{50}$.
Homatropinæ Hydrobromas gr. $\frac{2}{100}$.
Hyoscinæ Hydrobromas gr. $\frac{2}{100}$, $\frac{1}{100}$.
Hyoscyaminæ Sulphas gr. $\frac{1}{50}$.
Hydrargyri Perchloridum gr. $\frac{1}{50}$.
Morphinæ Sulphas gr. ¼, ⅓, ½, ⅔.
Morphinæ Sulphas gr. ¼.
Atropinæ Sulphas gr. $\frac{2}{100}$.
Morphinæ Sulphas gr. ¼.
Atropinæ Sulphas gr. $\frac{1}{100}$.
Morphinæ Sulphas gr. ¼.
Atropinæ Sulphas gr. $\frac{1}{100}$.
Morphinæ Sulphas gr. ¼.
Atropinæ Sulphas gr. $\frac{1}{100}$.
Morphinæ Tartras gr. ¼, ½.
Physostigminæ Salicylas gr. $\frac{1}{100}$.
Picrotoxinum gr. $\frac{1}{100}$.
Pilocarpinæ Hydrochloras gr. $\frac{1}{50}$, ⅛.
Quininæ Hydrobromas gr. ½.
Sparteinæ Sulphas gr. ½.
Strychninæ Sulphas gr. $\frac{1}{100}$, $\frac{1}{60}$.

Full list on application.

Other strengths and formulæ are frequently added and can be made to order. Put up in small tubes at 10s. per doz.

The Hypoderms may be dissolved in the syringe itself, thereby ensuring absolute accuracy of dose and saving of time to the practitioner.

Hypodermic Syringes and Cases in great variety. Any special form not in stock made to order. Fittings altered to suit individual taste. Illustrated Price List on application.

Physicians desiring to prescribe Hypodermic Tabellæ as manufactured by Allen & Hanburys, are requested to use their term "Hypoderm" and to add the initials "A. & H."

Samples of Hypoderms sent post free to medical men on application

Allen & Hanburys, London.

Laboratories and Warehouse—Bethnal Green, E. *City House*—Plough Court, Lombard St., E.C
West End House—Vere St., W. *Cod Liver Oil Factories*—Longva and Kjerstad, Norway.
Depôt for Australia—184, Collins St., Melbourne.

See also Pages i, iii, 419.

Tabellæ (COMPRESSED DRUGS). MANUFACTURED BY Allen & Hanburys

The main advantages of using many drugs in the form of Tabellæ are as follows:—

(a) They are very **portable.**

(b) They are readily **swallowed.**

(c) They are quickly **dissolved** or **disintegrated,** thus ensuring the speedy action of the drug.

(d) The doses are exactly measured.

(e) Their advantages are obvious in the saving of much time and trouble.

(f) The Drugs are of guaranteed purity.

Those formed of medicaments, generally applied to the mouth and throat, are made as heretofore, to dissolve slowly; the affected surfaces are thus constantly brought into contact with a solution of the Remedy. Those made of sparingly soluble substances such as **Bismuth, Sulphonal,** etc., are so prepared as to readily **disintegrate** on coming in contact with moisture.

The Journal of Laryngology, Rhinology, and Otology, January, 1893, writes, "It is this solubility of Messrs. Allen and Hanburys' Compressed Tabellæ which makes them so distinct from other preparations in the market."

When first introduced by us the importance and superiority of these **Disintegrating Tabellæ** were quickly recognised and afforded scope for "the sincerest form of flattery" in another quarter. Our discovery has received the highest commendation both from the press and the medical profession, whilst the large and constantly increasing demand for Compressed Tabellæ proves beyond doubt their popularity.

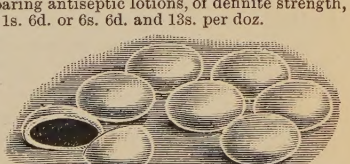
A FEW OF THE MORE IMPORTANT TABELLÆ ARE—

Acid Arseniosi, 1-100 gr.
*Aloin, 1-10, 1-4, 1-2 gr.
*Aloin Co.
*Aloin Co. *c.* Cascara.
Ammon Bremid.
Ammon Chlorid.
Ant. Acid.
Antifebrin.
Antipyrin.
Bismuth Soda et Zingib.
Calomel, 1-10, 1-4, 1-2, i gr.
*Cascara Extract ij gr.
Conf. Aromat. *c.* Opio.
Exalgine.
*Hydrarg. *c.* Creta.
Ichthyol.
Ipecac. Co.
*Laxative.
Lithiæ Co., Dr Lane's R
Morphiniæ Mur.
Morphiniæ Sulph
*Pepsin.
*Peptonic.
Potass Chlor.
Potass Permang.
*Quininiæ, gr. 1-10 to gr. v.
Rhei Co. Pulv.
Rhei Sodæ et Zingib.
Rhinitis *(Central Th. Hosp.)*
¶ Saccharin.
Salipyrin.
Salol. [aa gr. j.
*Santonin et Calomel,
Sodæ Bromide.
Sodæ Chlor.
Sodæ Salicylat.
Strophanthus Tinct., mij.
†Sublimate.
Sulphonal.
Sulphur Co.
Voice (Pot. Chlor. Borax et Cocaine).
*Warburgii (Tinct. mxxx.).

¶ Saccharin Tabellæ, a sweetening agent for the food and beverage of those suffering from diabetes, gout, dyspepsia. In bottles at 9d., 2s., and 4s. retail, or 7s. 6d., 21s., and 42s. per doz. to the profession.

†Sublimate Tabellæ, for quickly preparing antiseptic lotions, of definite strength, with ease and accuracy. In bottles at 9d. and 1s. 6d. or 6s. 6d. and 13s. per doz.

*In compliance with the popular demand for medicines in a palatable and convenient form, we are coating with sugar all those Tabellæ containing bitter and nauseous medicines, such as **Aloin, Cascara, Quinine, Laxative,** etc. (marked with an Asterisk). No bitterness is perceived when swallowed, and these valuable, though nauseous, remedies are thereby taken not only without distaste, but with pleasure.



CASCARA TABELLÆ (SUGAR-COATED).

All Tabellæ are supplied in bulk and in Vinaigrette Bottles for the pocket at 1s., 2s. 6d., and 4s. 6d. each, 8s., 21s., and 40s. per doz. to the profession.

Allen & Hanburys

Plough Court, Lombard Street, London, E.C.

West End House—Vere St., Cavendish Square, W. *Laboratories and Warehouse*—Bethnal Green, London, E. *Cod Liver Oil Factories*—Longva and Kjerstad, Norway.
Depôt for Australia—482, Collins St., Melbourne

See also Pages i, ii, 419.

ARNOLD & SONS' SPECIALITIES.

Aseptic Operation Tables, dressing wagons, sponge tables, instrument tables, sterilizers, and cabinets, as made for St. Bartholomew's Hospital.

New Vaginal and Rectal Speculum (Patented), by Dr. Duke. Vide *British Medical Journal*, March 11th, 1893. Price—Vaginal, 30s.; Rectal, 21s.

New Intra Uterine Applicator, by H. E. Trestrail, M.R.C.S., &c. Vide *The Lancet*, November 28th, 1891. Price complete in leather case, 21s.

New Phymosis Dilator, by T. F. Gardner. Vide *British Medical Journal*, Sept. 26th, 1891. Price 16s. Nickel plated, 17s. 6d.

New Injector Bougie, for Gleet, &c., by James McMunn. Vide *The Lancet*, August 22nd, 1891. Price, in silver, complete, 10s. 6d.

New Bullet Extractor (Patented), by Surgeon-Major Macnamara. Vide *British Medical Journal*, April 1st, 1893. Price, 10s. 6d.

New Nasal Polypi Forceps, by Dr. Ward Cousins. Vide *British Medical Journal*, November 21st, 1891. Price 9s. 6d.

Immediate Perineorraphy Case, by J. B. Hellier, M.D. Vide *The Lancet*, Jan. 23rd, 1892. Price, complete in leather case, 21s.

New Nasal Ointment Introducer, by W. Gayton, M.R.C.S., &c. Vide *The Lancet*, March 12th, 1892. Price complete, 6s. 6d.

Instrument for the Electrolysis of Nævi, by H. Lewis Jones, M.D. Vide *British Medical Journal*, Feb. 20th, 1892. Price 21s.

Nasal Scissors, by W. J. Walsham, F.R.C.S. Vide *The Lancet*, February 13th, 1892. Price 21s.

New Stricture Dilator, by Lieut.-Colonel E. Lawrie, Hyderabad. Vide *The Lancet*, April 9th, 1892. Price £3 3s., or complete in case, £3 10s.

Acupressure Pin, with Cannula, by W. J. Branch, M.D. Vide *British Medical Journal*, September 19th, 1891. Price complete, with silver cannula, 6s. 6d.

New Uterine Dilator, by T. F. Gardner. Vide *The Lancet*, January 23rd, 1892. Price 21s.; nickel plated, 23s. 6d.

Urethro-Dynamometer, by James McMunn. Vide *The Lancet*, October 10th, 1891. Price £5 5s.

New Aseptic Syringe (Patented), 4 oz. price 8s. 6d.; 8 oz., price 16s.

New Aseptic Ligature Bottle (Patented), composed entirely of glass. Price complete 8s. 6d.

New Uterine Dilator, by C. Yelverton Pearson, M.D., &c. Vide *The Lancet*, December 17th, 1892. Price complete, 21s.; nickel plated, 22s. 6d.

Improved Tonsil Guillotine, by A. Morison, M.D., &c. Vide *British Medical Journal*, January 16th, 1892. Price 25s.

New Hypodermic Syringe, as made for St. Bartholomew's Hospital, with patent oil reservoir and gold needles. Complete in Morocco-leather case, 21s.

Saline Transfusion Apparatus, by W. Arbuthnot Lane, M.S. Complete in wood case, 10s. 6d.

Aseptic Operation Knives (Patented), with hollow metal handles, nickel plated. (Handle and blade all one piece).

"Reliance" Clinical Thermometers, with Indestructible Indices. Price, from 3s.

ARNOLD & SONS,

Instrument Manufacturers by Appointment to Her Majesty's Government, the Honourable Council of India, the Admiralty, The Crown Agents for the Colonies, Her Majesty's Prisons, Foreign Governments, Royal Chelsea Hospital, St. Bartholomew's Hospital, and the Principal Provincial and Colonial Hospitals, &c., &c.,

31, WEST SMITHFIELD, and 1, 2 & 3, GILTSPUR STREET,

LONDON, E.C.

[ESTABLISHED 1819.

THE CLINICAL TEST.

Case (one of three) reported in the **MEDICAL ANNUAL, 1893,** showing the

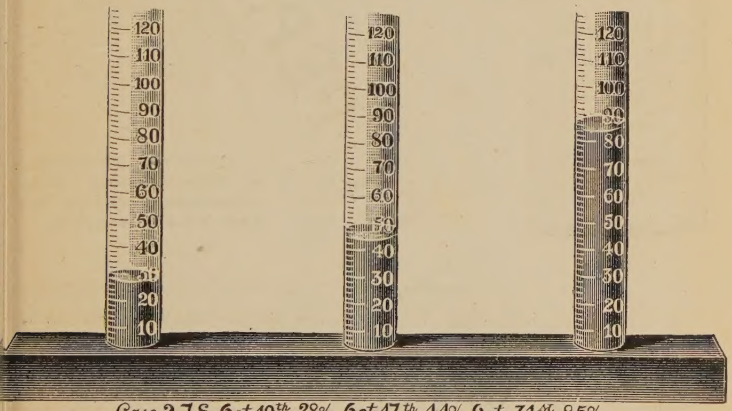
Percentage increase of Hæmoglobin

by the use of two

BIPALATINOIDS OF CARBONATE OF IRON

three times daily.

MEDICAL ANNUAL, 1893. **PLATE VIII.**



Case 2. J. S. 6ct, 10th 28%, 6ct, 17th 44%, 6ct, 31st 85%.

"Will as a matter of course meet with hearty and very general approval."—*Lancet.*

"A very ingenious and marked progress in elegant and efficient pharmacy."—*British Medical Journal.*

"Well worthy of the attention and the gratitude of the Profession."—*Medical Annnal.*

"The climax of pharmaceutical perfection."—*Indian Medical Record.*

"Prince of all."—*Medico-Chirurgical Journal.*

Price to the Profession, **2/6** per gross.

OPPENHEIMER, SON & CO., LTD.,

14, WORSHIP STREET, E.C.

The NEW

HEPATIC STIMULANT

AND

PROTEID DIGESTIVE

Dose:—
℥i fl. in water.

LIQ. HELALIN ET PEPSINÆ CO. (OPPENHEIMER).

(Registered.)

Helaline possesses a stimulating and cholagogic action on the biliary organs.

A combination of Helaline with pure Pepsine Poici in a concentrated fluid state.

The most reliable Liver Stimulant yet placed before the Profession.

In ½ lb. and 1 lb. bottles at 10/6 per lb.

SAMPLES FREE TO THE PROFESSION.

OPPENHEIMER, SON & CO.,

LIMITED,

14, WORSHIP ST., E.C.

CREAM OF MALT
WITH
COD LIVER OIL
AND
HYPOPHOSPHITES.

(OPPENHEIMER.)

CONTAINS the Hypophosphites of Lime, Soda, and Potash, together with the Finest Norwegian Cod Liver Oil in a perfect state of solution in the strengthening, vitalising, and sustaining properties of the Malt. Free from fishy odour and taste of the oil which it contains in a state ensuring its ready assimilation. It possesses decided advantages over emulsions, suspensions, and other mixtures in which the odour and taste of the oil is only partially disguised and remains in a condition which cannot readily be digested. Physicians will find their patients can take and retain Cream of Malt with Cod Liver Oil and Hypophosphites, where all other forms cause nausea.

Price to the Profession, 3/- size 2/3 each; 5/6 size 4/- each.

OPPENHEIMER, SON & CO., LTD.,
14, WORSHIP STREET, E.C.

LIQUOR

Caulophyllin et Pulsatillæ Co.

(OPPENHEIMER.)

Exerts its power principally over the Kidneys, Ureters, Urethra, Uterus, and Vagina, and stimulates the assimilating organs.

INDICATIONS:—Amenorrhœa, Dysmenorrhœa, Leucorrhœa, Premature cessation of the Menses, Prolapsus-uteri, and to prevent miscarriage, &c.

DOSE ℥i FL. IN WATER.

(In prescribing please specify **OPPENHEIMER.**)

LIQUOR

Euonymin et Pepsinæ Co.

(OPPENHEIMER.)

Hepatic stimulant and proteid digestive.

For all liver and digestive disturbances.

DOSE ℥i FL. IN WATER.

(In prescribing please specify **OPPENHEIMER.**)

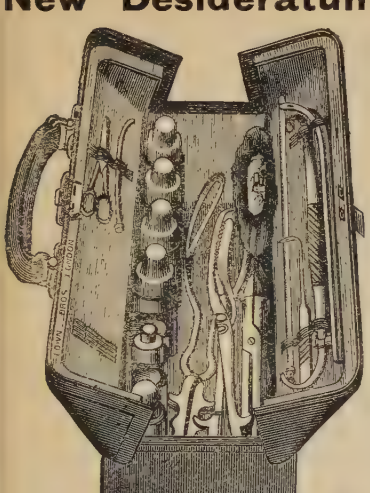
OPPENHEIMER, SON & CO.,

(LIMITED,)

14, WORSHIP ST., E.C.

DOWN BROS.'

New "Desideratum" Midwifery Bags



No. 1 size, containing Barnes' Midwifery Forceps with Simpson's handles, Simpson's Craniotomy Forceps, Denman's Perforator, Blunt Hook and Crotchet, and Frœnum Scissors, all nickel-plated, celluloid Female Catheter, three stoppered Bottles in boxwood cases, Tube Boric Jelly, Bottle Mercurial Pellets, and spring-stoppered Drop Bottle.

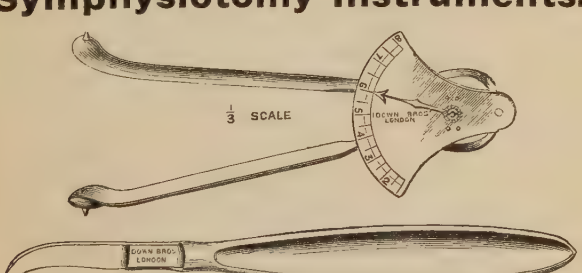
Complete .. £6 4 9

No. 2 size, Aseptic, containing Barnes' Midwifery Forceps, with metal Simpson's handles, Simpson's improved Craniotomy Forceps with metal handles, solid forged Blunt Hook and Crotchet, Denman's Perforator, Frœnum Scissors, all nickel-plated; Celluloid Female Catheter, Budin's tube for washing out Uterus, Galabin's Bougie for inducing premature labour, Skinner's Chloroform Mask, Rodman's Drop Bottle, four 2 oz. stoppered Bottles in boxwood cases, Tube Boric Jelly, Bottle Mercurial Pellets, Bottle Carbolised Silk.

Complete .. £8 6 6

Useful additions:—Cephalotribe, Transfusion Apparatus, Barnes' Hydrostatic Dilators.

Symphysiotomy Instruments.



1/2 SCALE

Pinard's Dilator, nickel-plated .. .. each **£2 6 0**
Galbiati's Knife, forged solid, and nickel-plated handle .. .. .. ,, **£0 6 6**
The Set in case, complete **£2 18 6**

ILLUSTRATED CATALOGUES ON APPLICATION.

DOWN BROS., Surgical Instrument Manufacturers,

5 & 7, St. Thomas's Street, LONDON, S.E.

Opposite Guy's Hospital. (Factories—King's Head Yard, Borough.)

Telegraphic Address: "DOWN, LONDON." *Registered throughout the World.*

THE KEPLER SOLUTION.

COD LIVER OIL **IN MALT EXTRACT.**

The "British Medical Journal" says—"It is an ideal form for the administration of fat."

IT was long after the first introduction of Cod Liver Oil before means were devised for administering it in a palatable form. When an oil is given alone a considerable and prolonged digestive effort is required before assimilation is possible, and in not a few instances it is voided unchanged. Moreover, the digestion is generally soon deranged. The problem, therefore, was how to cover the unpleasant taste of the oil, and at the same time to increase its assimilability. Emulsions were tried, but although the taste was somewhat masked it was found that in the stomach the warmth of the body caused the oil globules to coalesce, and unpleasant and nauseating eructations were the result. Pharmacists lost sight of the fact that Cod Liver Oil is a food, consequently all other methods of sophistication, being wrong in principle, failed to give satisfaction.

The question was finally solved by the introduction of the KEPLER SOLUTION OF COD LIVER OIL IN MALT EXTRACT. It was at length recognised that Cod Liver Oil was a *food*, and that the only rational way to take it was in combination with another food, for instance, as butter with bread. If the matter be considered for a moment it will appear just as unreasonable to give Cod Liver Oil by itself as to give butter by itself. No stomach can be expected to tolerate it. In the Kepler Solution the oil is not emulsified, no oil globules are visible through the microscope, the oil is actually dissolved in the Extract of Malt. That being the case, it produces no unpleasant effects when taken in the stomach, but passes through the pylorus unaffected, and is readily absorbed by the lacteals.

The Kepler Solution is supplied to the Medical Profession, by all Chemists, in ¾ lb. and 1½ lb. bottles, at 1/8 and 3/- each.

SAMPLES SENT TO MEDICAL MEN FREE ON REQUEST.

BURROUGHS, WELLCOME & CO.,

Snow Hill Buildings, LONDON.

Telegraphic Address:—"Burcome, London."

EXTRACT OF MALT.

(KEPLER.)

The *London Medical Record* says:—

"The KEPLER EXTRACT OF MALT is the best, the richest in diastase, and the most largely used."

The importance of Extract of Malt in debilitated conditions has long been recognised by the Medical Profession. The main advantages of a good Malt Extract are that it is highly nutritious, readily assimilated, and rich in that important factor, diastase, which converts starchy foods into maltose and other saccharine and easily digested aliments. It is consequently an effective aid to digestion, and can be tolerated by the stomach when cod liver oil by itself would be out of the question.

Helbing's Pharmacological Record for Dec., 1892, says:—

"The Kepler Extract of Malt asserts its great superiority when all its factors are taken into consideration."

The authors of the above-mentioned publication recently conducted an investigation into the properties of the various Extracts of Malt in the market. The following points were considered :—Colour and consistency, odour and flavour, percentage of water, acidity and iodine absorption, presence of diastase and of saccharine and inorganic constituents.

In all these respects the KEPLER EXTRACT OF MALT showed its superiority over its competitors, and the authors even pay it the high compliment of suggesting it as a standard for the proposed Pharmacopœia preparation.

Kepler's Extract of Malt supplied to the Medical Profession by all Chemists, in ¾ lb. and 1½ lb. bottles, at 1/8 and 3/- each.

Samples sent to Medical Men free on request.

BURROUGHS, WELLCOME & CO., Snow Hill Buildings, LONDON, E.C.

Telegraphic Address :—"Burcome, London."

A*

TABLOIDS

(OF COMPRESSED DRUGS). B., W. & CO.

FOR INTERNAL USE.

In these are secured absolute accuracy of dose, purity of material, solubility, and perfect disintegration. They are, moreover, quite palatable, and, on account of their portability and reliable dosage, present many advantages to the physician, nurse, and patient; for by means of them medicines may be regularly and systematically administered, even when patients are travelling or attending to business or professional duties.

FOR OPHTHALMIC USE.

This is a new departure in our "Tabloid" section, and is intended to supply the majority of those agents commonly used in the treatment of the diseases and affections of the eye, in a convenient and portable form. We are assured that the Ophthalmic "Tabloids" will be heartily welcomed on account of the many obvious advantages which they present. We have already issued the following:—

A	Atropia Sulph.	1-200 gr.
B	Atropia Sulph.	1-200 gr.
	Cocaine	1-200 gr.
C	Cocaine	1-20 gr.
D	Atropia Sulph.	1-20 gr.
E	Homatropine Hydrochlor	1-40 gr.
F	Eserine Salicyl.	1-600 gr.
G	Eserine Salicyl.	1-500 gr.
	Tropacocaine	1-100 gr.
H	Homatrop. Hydroch.	1-400 gr.
J	Hydrarg. Perchlor.	1-1000 gr.
K	Pilocarpine	1-400 gr.
L	Tropacocaine Hydrochlor	1-30 gr.
M	Pilocarpine	1-500 gr.
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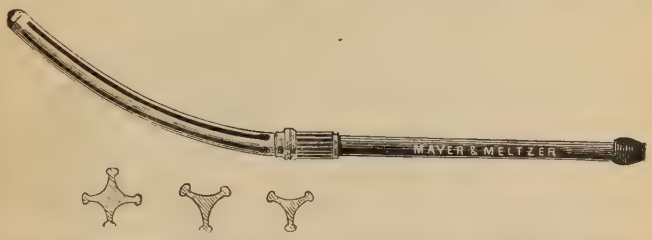

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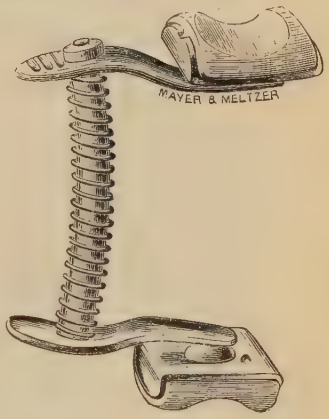

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EDITED BY

JAMES BRAITHWAITE, M.D. LOND.

OBSTETRIC PHYSICIAN TO THE LEEDS GENERAL INFIRMARY.
LATE LECTURER ON DISEASES OF WOMEN AND CHILDREN, LEEDS SCHOOL OF MEDICINE.
FELLOW AND LATE VICE-PRESIDENT OF THE OBSTETRICAL SOCIETY OF LONDON.
CORRESPONDING FELLOW OF THE GYNÆCOLOGICAL SOCIETY OF BOSTON, U.S.

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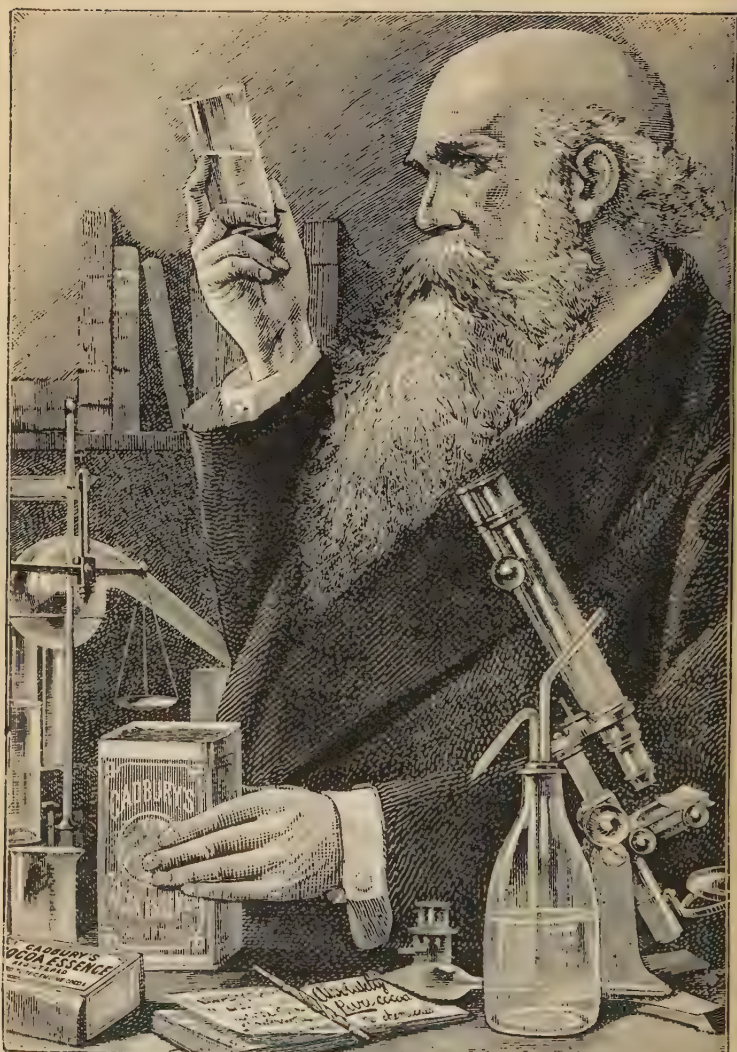

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Synopsis.

An Abstract of the most Practical Articles in this Volume, with other Short Articles from the Medical Journals, showing the most important indications of Treatment, published by different writers during the half year.

Arranged Alphabetically.

GENERAL MEDICINE AND THERAPEUTICS.

ANÆMIA.—Treatment by Desiccated Ox-blood.

At the Liverpool Medical Institution, on April 6, 1893, Dr. Carter drew attention to the value of desiccated ox-blood in the treatment of the graver forms of anæmia. He had brought this substance under the notice of the members a good many years ago, but was under the impression that its value was not fully appreciated. It was said to consist, and he believed did consist, of defibrinated ox-blood evaporated at a low temperature, either in vacuo or under diminished pressure, and had much the appearance of the tartrate of iron. Unlike that substance, however, it was insoluble in water, and, owing to its somewhat nauseous taste, was given either in an enema or mingled, after pulverisation, with cocoa-butter as a suppository. Dr. Carter said that it was very stable, and would keep for an indefinite time unless rendered moist, the specimen which he exhibited having been in his possession for at least ten years. It could be easily pulverised. The best way of administering it was, he thought, to soak two teaspoonfuls for twelve hours in four fluid ounces of water, and then to introduce it in that quantity as an enema twice daily. Though insoluble it diffused through the water, and passed easily through the ordinary rectal tube of any enema apparatus. The liquid in which it had been soaked exhibited the ordinary absorption bands of blood when a thin layer was examined spectroscopically, and he presumed that iron was exhibited to the patient in this substance in its natural organised form as hæmoglobin. Unless introduced suddenly, so as to be suddenly discharged from the bowels, it was wholly absorbed, and the stools were not darkened as they were by the preparations of iron. Dr. Carter mentioned several

cases as illustrative of its value. The most recent was that of an elderly lady, who had been brought to consult him by her daughter a few weeks previously. Considering her age and the extreme degree of anæmia (unoccasioned by hemorrhage) from which she was suffering, he was very apprehensive concerning the result, and mentioned his fears both to the daughter and to her only son, whom he requested to call on him, in order that he might tell him of his mother's danger. She soon began to improve under the use of the enemata, and, as he was informed by her daughter some time afterwards, became quite well. (Liverpool Medico-Chirurgical Journal, July, 1893, p. 445.)

BACILLUS COLI COMMUNIS.

At the Association of American Surgeons (June, 1893), Dr. Roswell Park, of Buffalo, read a paper on "The Importance to the Surgeon of the Bacillus Coli Communis." Evidence was presented showing that the colon-bacillus, which is constantly present in the intestinal canal, is not always a harmless parasite, but that it at times becomes an active invader, not confining itself to the intestinal mucosa, where it may cause most active degenerative lesions, but penetrating into the general circulation, and exercising pernicious activity in numerous other organs, as well as toxic effects upon the system at large. Herniary cholera, so-called, is due to intoxication from the products generated by virulent colon-bacilli. From the intestinal canal the colon-bacillus may ascend the biliary passages, determining lesions in the gall-bladder or liver. It is known to be one of the frequent factors in the development of peritonitis of intestinal origin. In the kidneys, as well as in the bladder, the colon-bacillus may display pathogenic and pyogenic properties. The organism may be introduced from without, as upon a catheter, or it may be transferred from its normal habitat by some traumatism of the natural channels. The endocardium, the meninges, the pleura, the synovial membranes, and the lungs are at times the seat of its invasion. It is probable that there is a form of post-operative septicemia due in no direct way to the operator or operation, but, in fact, an enterosepsis, caused by the migration from the intestinal canal of the colon-bacillus. Constant attention to the intestinal canal should therefore be the watchword of the surgeon both before and after the operation. Six cases were reported in which the colon-bacillus was found; in some instances it was the only organism present. The cases were as follows: 1. Carcinoma of the intestine, with abscess; 2. Recurrent peri-appendical abscess; 3. Acute abscess of the liver; 4. Gangrenous appendicitis; 5. Acute appendicitis, with perforation and obstruction of the bowel; 6. Suppurative cholecystitis. (Medical News, June 10, 1893, p. 636.)

CHLORALOSE.

MM. M. Hanriot and Ch. Richet have studied the physiological action of this new remedy. This substance is the result of the action of chloral anhydride upon glycose ; it is crystallizable, soluble in boiling water, and on cooling deposits crystals. It can be administered, sufficiently diluted, in milk. It is very bitter and disagreeable, and leaves a nauseous after-taste if given in an aqueous solution. If administered to dogs it produces somnolence, a noticeable reflex and psychical excitability, but without slowing the respiration or heart, which retains its force, and when the sleep is profound the reflexes are all preserved. Their motor power is not lost, although they do not react to excitations, which, in a normal animal, are painful. Observations upon man show that this substance is a certain hypnotic. It can be exhibited in wafers, in dose from six to ten grains ; and, in one instance, twenty-two grains produced no other effect than a prolonged sleep. The average dose is between six and seven grains, but it is better to commence with a smaller one.

M. L. Landouzy has used this drug during the past eight months as a soporific, always on patients without fever, without appreciable organic visceral lesions, neurasthenics of different degrees, with whom remedies of this class, even in large doses, have failed. In eleven cases, of thirteen, sleep resulted, generally of several hours' duration, restful, calm, and of agreeable awakening ; sometimes it is followed by an unpleasant awakening, heaviness of the head, headache, vertigo, emptiness of the head, inappetence, slight malaise, which has persisted an hour after awakening. With two patients these symptoms were more serious, and accompanied by a desire to vomit, coldness of the extremities, cardiac oppression, tendency to fainting, and palpitation. A single dose of five grains, given an hour and a half after eating, may be repeated at the expiration of two hours. He believes this remedy to be superior to chloral, and in smaller dose, the head symptoms have appeared to be less than with the latter drug.

M. P. Marie records his observations in eleven cases of insomnia, claiming good results. In insomnia of alcoholic origin his successes were not equal to those from morphine, two cases only being cited.

M. R. Moutard-Martin states that the sleep is soon obtained, is light, and the awakening without the heaviness which is often experienced from chloral. There is no constipation, nor any unfavourable effect upon the stomach, and the appetite may even be increased. From a study of eight cases he concludes ; 1. That it is an efficient hypnotic in doses of from five to ten grains. 2. That the preferable method of administration is in a cachet of six grains one hour before sleep is desired, and the second at

the first moment of awakening. 3. That the sleep is a calm, dreamless one. 4. That a dose of six grains is followed by sleep within a half to one hour. 5. That the awakening is complete, and without heaviness of the head. 6. That after several days' successful use of this remedy, during from two to four days of intermission of it one observes a sleep not so good as with it, but better than before its administration.

M. Ch. Segard has experimented with this drug in six instances: neurasthenia, cardiac disease, arterio-sclerosis, cervico-brachial neuralgia, gout, and paralysis agitans, and concludes that, although it has no analgesic action, it is a reliable hypnotic, even in small doses.—*Comptes-rendus hebd. Société de Biologie*, 1893, No. 2, p. 1. (American Journal of the Medical Sciences, April, 1893, p. 454.)

CHLOROSIS.—Arsenic in.

It is a very common practice to give small doses of arsenic in combination with iron in chlorosis, and there is a general belief that it hastens the cure. It is also very generally thought that arsenic increases the number of red blood corpuscles, without exercising so marked an effect on the amount of hæmoglobin. The published proofs supporting these opinions are not very strong evidence. Arsenic appears to have been first recommended by Isnard in chlorosis, but Dr. Wilks states that he began to use it about 1855 "with much benefit, but it was not until about ten years afterwards that I had some striking examples of its good effects." A careful perusal of Dr. Wilks's paper brings the conviction that the benefit was obtained in cases of pernicious anæmia, Addison's disease, and general wasting, rather than in chlorosis.

Renzi recommends it strongly, but his cases of severe anæmia seem also to have been pernicious. Dujardin-Beaumetz places arsenic before iron in utility; he holds that it stimulates the alimentary tract and acts as a food by diminishing tissue waste (*aliment d'épargne*), but Schücking is of opinion that for this very reason it should be withheld, as it lessens oxidation in the body.

Fenoglio used Fowler's solution in girls of 10 to 14 years of age. In some the hæmoglobin remained unaltered, in some there was an increase, in others a decrease. He is of opinion that arsenic is of value in anæmia, but his results as stated are very inconclusive, and the girls from their age (they were inmates of an institution) were probably not the subjects of typical chlorosis. Dr. Hunt gave Fowler's solution also in a number of cases, and "though it occasionally effected a considerable rise in the number of corpuscles, this rise was very unsteady, and liable to great fluctuations and relapses." Dr. Willcocks also failed to get any

improvement from its use in two cases of chlorosis, as in both the corpuscles and hæmoglobin diminished considerably, but improved as soon as iron was substituted. Dr. Andrew Smart failed to get any marked improvement under arsenic, and Hayem also finds it of no value, while Delpeuch, and Cutler and Bradford state that it diminishes the number of corpuscles in healthy adults. The latter found that in one case the number of red corpuscles, which had previously fallen 1,000,000 cubic mm. below the normal, rose again in three weeks after discontinuing the arsenic. Certainly the balance of evidence is not in favour of arsenic as a hæmatinic in chlorosis or in health. My own cases bear out this view. They were all treated in hospital, and were cases of typical chlorosis without any unusual complication. Five cases is not a large number, but the results are supported by those of other observers as previously mentioned ; and besides the uselessness of arsenic was so obvious in the appearance of the patients that it seemed quite unnecessary to increase the number. The immediate improvement when iron was substituted for the arsenic was most striking. My cases show no reason to suppose that either the red corpuscles or the hæmoglobin are increased by the administration of arsenic in chlorosis. They were all under the most favourable conditions for recovery, their diet and bowels were carefully attended to, and they had complete rest in bed or very gentle exercise in the hospital garden, but not one of them showed any material improvement. (Dr. Stockman, British Medical Journal, April 29, 1893, p. 884.)

Chlorosis—Best Form of Administration and Dose of Iron in.

At present this is largely a matter of opinion ; different practitioners use different preparations, apparently with equally satisfactory results. Formerly the astringent preparations were most in fashion, now it is the milder preparations and proto-salts. No proof has yet been given that any one preparation of iron cures chlorosis more quickly than another, and we shall probably make little progress in this direction until we know more about the form and conditions of absorption. Hayem holds the oxalate to be most satisfactory, while others think they get the best results from the protochloride, carbonate, perchloride, double salts, &c. Meanwhile it seems most rational to use those preparations which disturb digestion least. Latterly I have employed chiefly reduced iron and freshly prepared carbonate. Frequently, if there be gastric dyspepsia, 1 grain of reduced iron along with bismuth subnitrate agrees perfectly well if given before food. As regards dosage, there is a general idea that very large doses give the most satisfactory results, but on looking over the literature I find that large doses of iron

have often been protested against on the ground that they tend to disturb digestion, and also that small doses act equally well. I am not yet able to express any decided opinion on this point, but latterly I have been using much smaller doses (1 to 2 grains of reduced iron or carbonate of iron twice or thrice daily), and find that the cases recover quite satisfactorily. Of one thing I feel convinced—namely, that in chlorosis the ordinary inorganic preparations of iron cure much more quickly than organically-combined iron does. Patients fed on even a rich and varied diet, containing plenty of organic iron, do not, as a rule, recover until inorganic iron is administered. I have tested this frequently, and have no doubt it holds good in the great majority of cases, although some cases of chlorosis do recover spontaneously and without any treatment (that is, on the iron of the food alone). (Dr. Stockman, British Medical Journal, May 6, 1893, p. 943.)

CHOLERA ASIATICA.—Treatment.

Dr. Frank Abbott, junr., from his observations made at Swinburne Island in 1892, believes that a 2 per cent. solution of tannic acid stops the growth of the comma bacillus and destroys its vitality in from one to three hours. He recommends one-half gallon of this solution, made with sterilized water, by enteroclysm at a temperature of 104° F., and injected into the colon by a flexible catheter not less than two feet long, the pressure being regulated by a fountain syringe at the height of about four or five feet. In some instances, when vomiting has not begun, calomel in doses of 10 grains, repeated every hour until 30 grains have been taken, may prove of great advantage as a deterser of the intestines. All patients should be thoroughly washed in an immersion hot bath, and their skin cleansed with slightly acid solutions. They should be put in a warm bed, and stimulants, such as hot coffee or hot tea, with brandy, administered. At the first signs of collapse, hypodermoclysis up to the amount of a quart should be resorted to. This solution is of the strength of seven parts of sodium chloride to one thousand parts of sterilized water, with the addition of ten parts of brandy or six parts of pure alcohol, if needed, and the whole raised to a temperature of 98·4° F. Hot-air baths are useful to maintain the temperature of the body. If there are symptoms of asphyxia, inhalations of oxygen seem to have been of benefit. Cramps are relieved by the combined action of hot-air baths and massage. Opium and all its derivatives, chloral, and bromides are contra-indicated. In the reactionary stage the nutrition of the patient and the restoration of the impaired action of the kidneys are the principal aims of the physician. Seltzer-water with milk,

carbonated beverages, champagne in moderate doses, maltine with cod-liver oil in weak children, or with peptones in older persons, as a substitute for a combined meat and cereal diet, and in those cases where duodenal digestion is poor, will be found beneficial. The convalescence is long and tedious, and notwithstanding the apparently good condition of the patients they are very debilitated, and the least error or excess in diet may give rise to serious complications. It is believed that treatment carried out as above, with careful attention to detail and begun early enough in the disease, may reduce the mortality to a still lower figure.—*The Medical Record*, 1893, vol. xliii, p. 363. (American Journal of the Medical Sciences, July, 1893, p. 77.)

CHOLERA.—Atropine in.

At the Royal Medical and Chirurgical Society, on June 13, 1893, Dr. Lauder Brunton, read a paper on this subject. In 1873 the author drew attention to the close resemblance between the symptoms of cholera and those of muscarine poisoning. The action of muscarine was almost completely antagonised by atropine, so that the symptoms produced by the former poison were removed by subcutaneous injection of the latter. He therefore came to the conclusion that good results might be hoped for in cases of cholera poisoning by the subcutaneous injection of atropine ; but the first opportunity he got of testing the supposition himself occurred a few months ago in the case of a patient who had come across from Hamburg. The father of this child died very shortly after admission into the hospital. The child was collapsed and appeared likely to die, but a subcutaneous injection of atropine revived her for a time. This was followed by a relapse, but another injection was administered with good results, and the child recovered. Never in either the child's case or her father's did the stools present an appearance of rice water, but cholera bacilli were found by Dr. Klein in the intestine of the father. The author suggested that there were various forms of cholera, and that atropine would probably be most useful in cases where cholera appeared to have an action on the circulation, and less useful in those cases where the intestine was chiefly affected, because Dr. Pye-Smith and he did not in their experiments find secretion from the intestine to be arrested by atropine. (British Medical Journal, June 17, 1893, p. 1267.)

CHOLERA.—A Suggestion for Effecting Intestinal Antisepsis in.

As alpha-naphthol is of disagreeable taste and is said to be somewhat irritating to the mucous membranes in full doses, purified beta-naphthol is to be preferred. The dose of either beta or

alpha-naphthol, as a prophylactic against cholera during exposure, should be one sufficient to promptly antisepticise, to a maximum extent, the whole gastro-intestinal tract—about five to ten grains, three to four times daily, best taken very finely pulverised, perhaps with white sugar as the excipient. In early choleraic diarrhœa similar or larger doses may be taken, but at shorter intervals. If thought desirable, combinations may be made with opium or with calomel. In the event of decided gastric irritability preventing the ingestion of naphthol, a prompt and thorough trial of it by Cantani's method of enteroclysis, two, and, if possible, more litres of warmed saturated aqueous solution in a fountain syringe should be gently forced into the bowel by hydrostatic pressure, efforts being made to pass the ileo-cæcal valve and irrigate the lower ileum. Could this procedure be invariably successful in all cases of cholera—and Cantani holds that he has proved that it is possible, even with comparatively small amounts of fluid, to force the valve—it would appear that we probably have in naphthol enteroclysis an almost certain specific for the arrest of cholera, if the injections are resorted to sufficiently early. It would be essential that the naphthol solution be retained a short time, sufficient for a disinfectant effect to be exerted, which Sternberg's experiments show occurs with comparative promptness in 1:2000 parts. With the saturated naphthol solution (about a gramme to the litre, or 1:1000), the ordinary ingredients of Cantani's injection may be employed, or, preferably, these minus tannin. The opium and gum arabic should be valuable adjuvants. These will, in addition to other obvious advantages of the opium, tend to allay any bowel irritability which naphthol in full strength might occasion. They will probably permit of a saturated solution being used and a large quantity of fluid being introduced—at least two litre—to ensure thorough distention of colon and passage of the ileo-cæcal valve. (Prof. D. D. Stewart, American Journal of the Medical Sciences, April, 1893, p. 392.)

CHOLERA STOOLS.—Disinfection of.

The simplest and at the same time the most reliable disinfectants for the stools of cholera-patients are chloride of lime, milk of lime, and boiling water. A 1 per cent. solution of good chloride of lime, has been shown to destroy the cholera-spirillum in fæces in ten minutes. It should be made up as a 2 per cent. solution and added to the evacuations volume for volume. Milk of lime, ordinary fluid white-wash, when added to these evacuations until the entire mass reacts distinctly alkaline completely disinfects them in one hour. *Boiling hot* water added to these stools, in the proportion of three parts of the water to one of the evacuations, renders them free from danger in ten minutes.

When possible, the disinfection should take place as soon as the stool has been passed, but when this cannot be done, the vessel containing the evacuation or vomit should never be allowed to stand either inside the room or anywhere else uncovered. The reason for this is that flies are known to carry infection from these sources, and it is not improbable that food-stuffs have been infected through this agency. Uffelmann found living cholera spirilla upon a fly two hours after it had come in contact with a fluid culture of this organism. (Medical News, June 10, 1893, p. 624.)

DIABETIC COMA.

Külz "On a prodromal and concomitant phenomenon in diabetic coma."—*Oest.-ungar Centralblatt f. d. medicin Wissenschaften*, January 1, 1893, and *Lyon Médical*, 1892, No. 23. From observation in 400 cases of diabetes, Külz has found that numerous casts appeared in the urine before and during diabetic coma. Only a minimal amount of albumen was present as a rule. The occurrence of casts in the urine, is, however, of great importance, and a noteworthy prognostic sign of approaching coma. No difference was noted in the number of casts, whether the coma terminated fatally or in temporary recovery. With the disappearance of symptoms of coma, the casts vanished from the urine. Sandmeyer also made a communication on this subject at the German Congress f. innere Medicin in 1891. (See *Beilage zum Centralblatt f. klin. Med.*, No. 28, 1891.) In 20 cases of diabetic coma he found numerous casts in every case. They were present when the prodromal symptoms occurred and also when the coma was marked.

[In three cases of diabetic coma recently seen by the abstractor, casts were present in great numbers. They are frequently mentioned in reports of cases of diabetes coma in Frerich's work on diabetes, but no attention is drawn to their importance.] (Dr. Williamson's Abstract, Medical Chronicle, April, 1893, p. 51.)

DIABETIC FOODS.

Saundby (Birmingham Medical Review, May, 1893,) offers the following recipes for diabetic food, which he has found palatable and not expensive:—Almond cakes—One pound of ground almonds, four eggs, two tablespoonfuls of milk, a pinch of salt. Beat up the eggs and milk, and stir in the almond flour. Bake in flat tins in a moderate oven for forty-five minutes. Cocoanut cakes—Three-fourths of a pound of fine desiccated cocoanut, one-fourth of a pound of ground almonds, six eggs, half a cup of milk. Mix as in the other cake, and bake for twenty-five minutes. Both these cakes keep well for a

week. Blanc-mange made of Iceland moss, and sweetened with saccharine, is absolutely free from injurious constituents, and very palatable. (Boston Medical and Surgical Journal, Aug. 3, 1893, p. 126.)

DIAZO REACTION.

Dr. W. R. Dawson appends the following conclusions to an important study of this subject:—(1) The diazo reaction is found in the great majority of cases of enteric fever at some period between the fifth and twenty-first days, and is more constant in that disease than in any other (of those tested) except measles, and, perhaps, acute phthisis; so that, with these reservations, its presence affords a presumption in favour of, its absence a much stronger presumption against, such a diagnosis. (2) The reaction cannot be used either positively or negatively to distinguish enteric fever from phthisis or measles, and that the presumption which it affords against typhus is small. (3) It is nearly or quite constant in measles, but absent in at least many cases of Rötheln, and may, consequently, be used to distinguish between them. (4) The substance causing it does not indicate its presence by any peculiarity in the colour, odour, deposit, reaction, or specific gravity of the urine, nor by the presence of albumin, sugar, or indican, although their concurrence is not uncommon. (5) It is not due to free acetone, nor to a direct product of the *bacillus typhosus* of Eberth. (The Dublin Journal of Medical Science, June, 1893, p. 501.)

DIPHTHERIA.—Treatment of.

Dr. M. J. Oertel divides cases of diphtheria into two classes: 1. When the local manifestations are at the outset superficial; and 2. When they commence in the tissues themselves. Cases of the first class are due to direct infection, and require careful antiseptic treatment, which consists in the destruction of the bacteria and prevention of their increase, and the absorption of the virus which they produce. The further production of the membrane will be prevented by the removal of the cause of the disease. The problem is to keep a sufficient amount of the antiseptic material for a sufficiently long time in contact with the diseased mucous membrane for its effectual operation. The use of remedies by gargling is unsatisfactory on account of the short time during which the remedy is in contact with the membrane. Painting the diseased mucous membrane with stronger antiseptic remedies produces much shorter time of contact; the remedy is diluted by saliva and mucus; it is not thorough in application, and requires frequent repetition. The application of remedies by the use solely of the steam atomiser is recommended; this permits of three to five minutes'

contact, and can be repeated every two or three hours. Carbolic acid, in from 2 to 5 per cent. solution, used as above, has never given rise to poisoning, and yet seems to be the most suitable remedy. In cases of the second class, where the membrane is a secondary manifestation of a primary general infection, the problem is entirely different. The place where the local antiseptic treatment should reach is one deep in the mucous membrane. The diphtherotoxine is already taken up by the lymph-cells of the blood and lymph and is widely distributed. Here local treatment, which tends only to the annoyance of the patient, and cannot exert a favourable influence upon the disease is superfluous. However, the use of so-called solvent gargles (alkalies, lime, soda) is of use in preventing stenosis of the air-passages, and, by disinfecting the mouth, in preventing the development of a septic form—a croupous form of diphtheria. Useless as remedies, and disturbing to the patient, are nitrate of silver, chromic acid, chloride of iron, and the galvano-cautery. Of constitutional treatment, that by blood-serum is based upon purely experimental researches and is uncertain, and chlorate of potash has been abandoned. The preparations of mercury, inunction or internal use of calomel, sublimate, or cyanide, have been followed by favourable results, although the knowledge of the action of these remedies upon zymotic processes is not sufficient to justify the statement that they possess a specific action against the diphtheritic process. From an empirical standpoint, the use of the cyanide is vindicated ; so also is that of quinine. Its antipyretic and parasiticidal action is, however, open to question.—*Berliner klinische Wochenschrift*, 1893, No. 13, S. 297 ; No. 14, S. 331. (American Journal of the Medical Sciences, July, 1893, p. 83.)

ENTERIC FEVER.—Empyæma in.

Weintraud (*Berliner klin. Wochenschr.*, xxx. Jahrg., No. 15, p. 346) has reported the case of a man, nineteen years old, who had had a left-sided exudative pleurisy three years previously, in which, at the close of the second week of an attack of enteric fever, slight impairment of the pulmonary percussion resonance was noted posteriorly, which was ascribed to hypostatic congestion. Defervescence took place in the fourth week, but emaciation persisted. The temperature rose again subsequently, and the dulness on percussion at the base of the left chest posteriorly, failed to clear up, so that the existence of a pleuritic effusion was suspected. Vocal resonance was slightly enfeebled upon the lateral aspect of the left chest. Exploratory puncture disclosed the presence of pus in the left pleural cavity, in which, upon bacteriological examination, it was demonstrated that bacilli corresponding to those of enteric fever were present.

In the reduced condition of the patient it was deemed best to defer operative interference. Two days after the exploratory puncture, symptoms of peritonitis (collapse, vomiting, small frequent pulse, subnormal temperature) suddenly appeared, suggesting the occurrence of rupture into the peritoneal cavity. Energetic treatment with opium was instituted, and at the end of a week the condition of the patient was much improved. The temperature was now observed to be elevated in the evening, and puncture made in the same situation as before demonstrated the presence of pus, which contained bacilli like those found in the fluid first removed, but much less virulent. Some degree of immunity to inoculation with virulent organisms was conferred upon animals treated with pus from the second puncture. The patient now entered upon convalescence, which proceeded to speedy recovery. (American Journal of the Medical Sciences, July, 1893, p. 86.)

ERYTHROMELALGIA.

Gerhardt (*Deut. med. Woch.*, September 29, 1892) describes a case occurring in a delicate woman, aged 44. She was suddenly seized with intense pain in the fingers and toes. There was also vomiting and headache. On admission there was marked redness in both hands and feet, and the end and middle phalanges were swollen. The left thumb alone escaped, but it was affected later. There was hyperalgesia of the swollen parts, and the hands and feet sweated readily. The fingers were held in a flexed position, and any attempt to further bend or straighten them gave pain. The urine contained a trace of albumen and some casts, otherwise there was no evidence of visceral disease. The right pupil was wider than the left. The optic discs were healthy. It was obviously a case of pain and altered blood-supply in the ends of the fingers and toes, known as erythromelalgia and first described by Graves about fifty years ago. Men are more often affected than women, the period of greatest liability being between the ages of 28 and 48. Cold, over-use of the members, previous debility, neuropathic tendency are among the predisposing causes, but no real direct cause is known. Pain increased by warmth is the chief and usually the first symptom, and then the swelling appears. The disease generally gets worse by attacks, and often disappears in the interim. The course is mostly very obstinate. The neuroses of the extremities have been divided into (1) the angio-spastic group, with pain and pallor, (2) the group in which there is pain without vascular symptoms, and (3) the angio-paralytic group illustrated by the case above-described. The last is apparently the rarest. (Epitome of the British Medical Journal, November 5, 1892, p. 73.)

INFANT FEEDING.

Hauser (*Berl. klin. Woch.*, August 14, 1893) describes a new method. He first refers to the well-known objections to a wet nurse, and the difficulties in artificial feeding. The author has used, in Henoch's clinic and elsewhere, a preparation introduced by Rieth, in which, after the smaller quantities of fat and sugar in cow's milk have been corrected by the addition of cream and milk sugar, egg albumen, heated above 130° C., is made to supply the deficiency in albumen. The preparation has the same composition as woman's milk, and is called albumen milk ("Eiweiss-milch"), but would be more correctly named albumose milk. The difference between this and ordinary milk, when subjected to artificial digestion, is obvious. If feeding with cow's milk properly prepared and sterilised does not suit, the author uses this preparation. Medicinal agents are not employed, and washing out the stomach is rarely necessary. There are two classes of cases—(1) those in which cow's milk properly prepared seems to suit, and yet the infants do not thrive, and (2) those with dyspepsia, &c. Some sixty infants were treated with this preparation, and the author has now used it for one year and a half. The infants take it well, vomiting ceases even in those in whom other preparations have failed, and the weight increases. It is given in small quantities, and cold in bad cases. The stools become healthy and regular, but they may be offensive owing to the sulphur in the albumoses. Failure is rare. This preparation is also useful in acute illnesses, in rickets, and some other diseases of children. Infants with whom mother's milk does not agree take it well. Older infants also thrive on it. Cow's milk may be added to it until pure milk feeding is arrived at. (Epitome of the British Medical Journal, September 30, 1893, p. 55.)

IODOFORM AMBLYOPIA.

Priestley Smith (*Ophthalmic Review*, vol. xii, No. 138, p. 101) has reported the case of a man, 31 years old, who presented symptoms of dry pleurisy at both bases, in conjunction with a solid mass in the abdomen, which was thought to be due to tuberculosis of the omentum. During a period of 41 days the treatment consisted in the administration of iodoform, at first two grains being given three times a day, and the dose being gradually increased until, during the last ten days, four grains were given eight times a day. Altogether about 1000 grains were taken. The drug was withheld on account of the appearance of toxic symptoms, including amblyopia, headache, giddiness, faintness, diarrhœa, twitching of the hands, and emotional depression. There were a constant taste and smell of iodoform, and the urine was alkaline and deposited triple

phosphates. Three days after the iodoform was withdrawn there was marked drowsiness and slight ptosis upon the left side. A day later the drowsiness had given place to irritability, and the ptosis had disappeared. There were numbness and tingling in the legs, and the knee-jerks were exaggerated. Four days after the withdrawal of the iodoform the refraction was found to be normal, and the media of both eyes clear; there was slight haziness at the margin of the disc, but no well-defined papillitis. Vision was much impaired, a well-marked central scotoma, absolute for white paper at or near the fixation-point, being present in each eye. Seven days after the withdrawal of the iodoform the haziness of the margins of the disc was rather more pronounced. Four weeks later vision was yet quite considerably impaired, and in each eye was a central color-scotoma, with a small absolute scotoma just below the fixation-point. Subcutaneous injections of strychnine were given for a week, and later iron and strychnine by the mouth. The condition of the man, as well as his general condition, improved progressively. Other possible causes than iodoform were excluded. (Medical News, May 27, 1893, p. 574.)

MYXŒDEMA TERMINATING FATALLY IN THE COURSE OF THYROID TREATMENT.

Thomson (*Edinburgh Medical Journal*, No. cdlv, p. 1014) has reported the case of an unmarried woman, 51 years old, who for ten years had presented well-marked, but not very severe, symptoms of myxœdema. For five years the woman had been living a quiet life, and the disease had progressed but slowly. For many months she was greatly relieved by taking 30 minims of tincture of pilocarpus three times a day. In this way her skin was kept comfortably moist, but the dryness of the skin ceasing to cause any annoyance the medicine was omitted; so that for some years the woman had had no special treatment for the myxœdema. Dyspeptic symptoms, with constipation and hemorrhoids, with chilliness and a distressing feeling of weakness and disinclination for exertion, persisted. On one occasion the woman had been seized with severe pain in the precordium, extending down the left arm. This recurred from time to time in varying intensity. Treatment with the thyroid gland of the sheep was instituted, at first a quarter of a gland and soon a half of a gland being given twice a week. Nitroglycerin (♏j of a 1 per cent. solution) was also administered for the relief of the paroxysmal pain. Notable improvement in the woman's condition took place, but upon attempting to sit up in bed on one occasion she suddenly fainted and died. At the post-mortem examination the cerebral arteries were found to be

atheromatous. The pituitary body was enlarged and firm, and its fossa deep. The thyroid gland was flabby and of diminished volume. The thymus was wanting. The heart was in a condition of advanced degeneration. It is pointed out that while the state of the heart-muscle was sufficient to account for the fatal syncope, the treatment may possibly have had some influence in hastening the fatal issue. (Medical News, May 27, 1893, p. 547.)

NITRITES.—Doses and Administration.

When nitrite of sodium was first employed medicinally it was found to be very impure, sometimes containing more than 50 per cent. of the inert nitrate ; even now impure specimens are occasionally dispensed. It is important therefore that the purity of the drug used should be inquired into if it does not give the relief sought for. With regard to dose, I believe it is well to begin with two grains. I have myself never seen discomforts from even three grains ; but severe throbbing of the head has been recorded after this amount, and when given regularly in a very few instances slight blueness of the lips has been reported. Much larger doses may be given if neither physiological effects nor relief follows from the smaller doses. I have raised the dose to three or four, rarely to six, grains without seeing evil follow, but occasionally even small doses cause slight stomach discomforts. Solutions of sodium nitrite in the form of mixtures seem to keep fairly well. Tabellæ trinitrini and the liquor trinitrini are excellent preparations of nitro-glycerine. It should be remembered, however, that nitro-glycerine will under some conditions decompose. In distilled water it undergoes no change, but in the presence of alkalies nitrite of the alkalies is formed, and when any salt is present some decomposition may occur. It is best therefore to order the liquor trinitrini in distilled water. One minim forms an average dose to commence with, but it may be gradually raised without fear of injury to twenty minims or more, provided no discomforts follow from its use. A small dose of nitro-glycerine may be repeated if it fails in ten or fifteen minutes to produce a perceptible effect, for in that time its full influence has been usually exerted. A somewhat longer time should be allowed to elapse after sodium nitrite. Nervous and hysterical people often feel throbbing in the head or even severe headache after small doses of either compound. It is rarely necessary to resort to subcutaneous injections, since nitrite of amyl acts so quickly when inhaled and nitro-glycerine when taken by the mouth. On one occasion, however, I saw a patient, after severe and prolonged anginal pain, lapse into semi-consciousness. After the failure of amyl nitrite relief seemed at once to follow the injection of two minims of liquor trinitrini. I find

that nitro-glycerine is preferable to sodium nitrite for subcutaneous injection. (Dr. D. T. Leech, Croonian Lectures, The Lancet, July 22, 1893, p. 178.)

PERNICIOUS ANÆMIA.

At the Harveian Society, on March 2nd, 1893, Dr. William Hunter read a paper on this subject. Up till recently it was customary to arrive at the diagnosis of this disease by a process of exclusion. It was held that no anæmia could be termed "pernicious" unless it could be proved not to belong to any of the other and better known forms of anæmia. The researches of recent years, however, enabled the diagnosis to be made on positive evidence. He was accustomed to rest his diagnosis almost entirely, although not exclusively, on a consideration of the changes in the blood, the characters of the urine, and certain associated changes pointing to disturbance of liver function. Unlike the other severe forms of anæmia, most of which were the result of impaired formation of blood, blood destruction being, if anything, less than in health, pernicious anæmia was due to an excessive destruction of blood, the chief features of which were that it was intermittent in its character, was limited to the portal division of the circulation, all the products of this destruction necessarily passing through the liver, and that it was occasioned by substances foreign to the healthy body introduced into the blood by absorption from the gastro-intestinal tract. The chief clinical features of this destruction were :— (1) As regards the blood a much higher percentage of hæmoglobin as compared with the percentage of corpuscles than was found in simpler forms of anæmia, notably in chlorosis and in the anæmia from loss of blood. Another change which he had recently found in the blood in pernicious anæmia was a greatly diminished alkalinity of the blood. (2) As regards the urine, the chief character in pernicious anæmia was its dark colour, either absolutely or relatively to the condition of the blood. In this respect it contrasted greatly with the pale, watery urine of simple anæmia. In some cases, as he had shown, blood pigment proper was to be found on microscopic examination of the urine, lying within renal cells, and resembling in all respects that found so abundantly within the cells of the convoluted tubules after death. (3) As regards the liver, he was accustomed to attach considerable confirmatory importance to the occurrence periodically of a slight degree of icterus of the conjunctivæ, or other evidence of liver disturbance. The chief work in disposing of the large excess of hæmoglobin set free within the portal area fell upon the liver ; and he found that the extent of the destruction taking place at any time could be best gauged by having regard to the character of the urine and the associated

disturbances of liver function. These facts suggested certain lines of treatment. Regarding the disease as he did as an infective one, localised to the gastro-intestinal tract, he thought our chief treatment should be directed to that tract. Reliance must be placed on the use of antiseptics, the best being beta-naphthol and salol, along with arsenic when that could be borne.

Dr. Bristowe believed with Dr. Hunter that under the term "pernicious anæmia" were probably comprised several diseases characterised by anæmia but due to different causes, and which, therefore, though resembling one another in many important features, were yet fundamentally distinct.

Dr. Pye-Smith remarked that the disease described by Addison in 1855 had since been misunderstood in Germany, and mixed up with anæmia of uterine, malarial, and other origins. It was a rare disease. It differed from chlorosis and from all secondary forms of anæmia in the great diminution of blood discs, the hemorrhages in the retina and elsewhere, the pyrexia, and the fatty degeneration which ensued, and in these respects it formed a natural group with Hodgkin's disease and leukæmia. Taking as two types anæmia from direct hemorrhage and anæmia from starvation, there might be recognised in disease lack of red blood discs from destruction of hæmoglobin, shown by dark urine, accumulation of iron in the liver and spleen, and secondary hemorrhage, and lack of blood discs from defective formation of hæmoglobin with pale urine; these latter cases were those benefited by iron. Dr. Hunter's important and interesting researches had not only extended those of Quincke on the accumulation of iron in the viscera, but had added much to our knowledge in other respects, particularly as to the reaction of the blood—a point of great interest, since that disease was probably of chemical rather than of histological origin.

Dr. Hale White showed a patient suffering from splenic leucocythæmia in whom the administration of arsenic had brought back the blood to its normal quality, but the liver and spleen continued to enlarge, and the patient remained very ill. Dr. Hale White remarked that on the whole the evidence he had accumulated bore out Dr. Hunter's contention, for out of 29 cases of pernicious anæmia he found that 41 per cent. gave a history of vomiting, and 34·5 per cent. gave a history of diarrhœa before admission. After admission 55 per cent. suffered from vomiting, and 41 per cent. from diarrhœa; but at the post-mortem examination it was nearly always found that the gastro-intestinal tract was healthy; when any changes were discovered they were slight and unimportant. While the urine was undoubtedly often dark, in some cases it was not, and

he considered that for theoretical reasons it was only probable that sometimes the dark colour should be absent. Cases had occurred at Guy's Hospital in which the liver had shown an excess of iron. Speaking of prognosis, Dr. Hale White related the case of a man who was cured by arsenic, but he gave statistics from the records of Guy's Hospital to show that the usual course was for the patients to improve once, twice, or even thrice upon arsenic, but finally they succumbed to the disease. (British Medical Journal, April 1, 1893, p. 699.)

SLEEPLESSNESS.—The Drip Sheet in.

If I want a positive aid at bedtime, I prefer sulfonal in hot water. But of greater value are some of the hydro-therapeutic devices; and best of these is what is known, or not known, as the "drip-sheet." Just how this is to be given is of the utmost importance. The following memoranda must answer to show how careful one must be, in my opinion, as to these details. I give it here in brief much as I do to a patient not under the immediate care of a nurse:—Basin of water at 65° F. Lower the temperature day by day by degrees to 55° F., or to still less. Put in the basin a sheet, letting the corners hang out to be taken hold of. The patient stands in one garment in comfortably hot water. Have ready a large soft towel and iced water. Dip the towel in this, wring it, and put it turban-wise about the head and back of neck. Take off nightdress. Standing in front of patient—the basin and sheet behind—the maid seizes the wet sheet by two corners and throws it around the patient, who holds it at the neck. A rough, smart, rapid rub from the outside applies the sheet everywhere. This takes but two minutes, or less. Drop the sheet, let the patient lie down on a lounge upon a blanket, wrap her in it, dry thoroughly and roughly with coarse towels placed at hand. Wrap in a dry blanket. Remove ice wrap; dry hair; put on nightdress. Bed, the feet covered with a flannel wrap. (Dr. Weir Mitchell, New York Medical Record, December 24, 1892, p. 723.)

SODIUM SALICYLATE.—Its use by Enema in Acute Rheumatism.

As a result of the employment of sodium salicylate by enema in the treatment of fifteen cases of acute articular rheumatism, seven of chronic articular rheumatism, one of pneumonia, one of puerperal septicemia, and in a healthy individual, Erlanger (*Archiv für klin. Medicin.*, B. v., H. 2 u. 3, p. 303) recommends this method of medication in all cases in which the salicylates, though indicated, cannot, for one reason or another, be taken by the mouth. It is essential, in order that absorption take place

that, if the bowels have not been spontaneously moved, a preparatory enema of water be given to clean out the lower bowel. The medicated enema should contain from a dram and a half to two drams of sodium salicylate, with half a dram of tincture of opium and three ounces of water. It should be warm and is best administered in one dose. The nozzle of the syringe should be introduced into the bowel for a distance of about eight inches. The patient is to be instructed that the enema is to be retained and not expelled. (Medical News, May 20, 1893, p. 550.)

SPIRITUS ETHERIS NITROSI.

Concerning the value of spiritus etheris nitrosi there is much difference of opinion. As a household remedy it is much believed in and largely used; as a medicine it is employed usually rather as a routine remedy than because much faith is placed in its action. When in proper strength it contains an amount of nitrite of ethyl sufficient to enable it to reduce tension, yet its proneness to decomposition renders it an unreliable remedy for the purpose. The lack of appreciation of its value is, however, to some extent due to the method in which it is ordinarily employed; it consists of rectified spirit containing in solution from 2 to $2\frac{3}{4}$ per cent. of nitrite of ethyl, an uncertain amount of aldehyde and minute proportions of ethyl nitrate and other compounds. Aldehyde possesses properties which are in some measure antagonistic to those of ethyl nitrite; it contracts vessels, whilst nitrites dilate them. Ethyl nitrate acts in the same direction as ethyl nitrite, but it is to the latter compound that spirit of nitrous ether owes its influence on the circulation. Now spirit of nitrous ether, when not exposed to the air, does not undergo rapid change in constitution, but kept, as it often is, for dispensing purposes, it rapidly loses some of its nitrite element. I found, for example, that a half-filled bottle, which on the day I first examined it contained the official amount of ethyl nitrite, lost in thirteen days 16 per cent. Many cases have been mentioned in which spirit of nitrous ether has been found to contain less than one-tenth of the normal amount of nitrite; but, owing to the method in which it is usually given, it becomes still more unreliable as a remedial agent. Under any circumstances a considerable portion of the nitrite of ethyl which it contains (about 50 per cent.) is at once dissipated; but on keeping the mixture the loss continues until all the ethyl nitrite is dissipated or decomposed. If, for example, half an ounce of spiritus etheris nitrosi is mixed with four ounces of water about half of the active ingredient—the nitrite of ethyl—is usually at once dissipated; but it will be found that on the next day from 30 to 50 per cent. of what was left has gone, and

on the third day the mixture will probably contain a very small amount of the ethyl nitrite. The rapidity of disappearance varies greatly according to temperature and other circumstances; but it is manifest that under these conditions mixtures containing spirit of nitrous ether soon lose any medicinal value which they may have had when first dispensed. To be effective spiritus etheris nitrosi should be taken immediately it is mixed with water. A mixture becomes less effective with each dose taken. An alkali, or the acetate or citrate of ammonia prevents to a large extent this loss of nitrite. It is on this account, perhaps, that the old-fashioned fever mixture, containing acetate of ammonia and spirit of nitre, has justly maintained for so long a time its reputation as a diaphoretic and diuretic. In combining spirit of nitrous ether or the nitrites with other medicines the short period of their activity must be remembered. It has been suggested that the contraction of the vessels due to digitalis might be counteracted by combining it with the nitrites. Undoubtedly the contraction caused by digitalis may for short periods of time be annulled, but the prolonged action of digitalis on the vessels cannot be fully antagonised by substances like the nitrites. (Dr. D. T. Leech, Croonian Lectures, July 22, 1893, p. 178).

SYPHILIS.—The influence of treatment of a Syphilitic Mother, especially during Pregnancy, on the health of the Infant.

Etienne (*Annales de Gyn.*, April, 1892) draws the following conclusions from the study of thirty-two cases of pregnancy in syphilitic women :—(1) The fœtal mortality, in cases in which the mother has never been treated, is enormous, reaching 95·5 per cent. If treatment be applied throughout pregnancy, we may hope to obtain almost complete immunity from this infant mortality. (2) Syphilis attacks the fœtus especially during the fifth, sixth, and seventh months of intrauterine pregnancy. (3) Paternal syphilis is less injurious to the fœtus than maternal syphilis. (4) The prognosis differs according to the stage of pregnancy when the mother becomes contaminated; (*a*) if infection occurs during the first three months, and is not treated, the mortality during the first few days after delivery reaches 100 per cent.; (*b*) the prognosis is a trifle better, if infection occurs during the fourth and fifth months; (*c*) in one case of infection at the eighth month, the child lived and was apparently healthy; in a second similar case the child was in good condition at birth, but developed symptoms of syphilis later; (*d*) whenever suitable treatment was administered, the mortality was *nil*. (5) In no case were any unfavourable

results met with from internal medication during pregnancy. (Dr. Green's report, Boston Medical and Surgical Journal, August 3, 1893, p. 119.)

TETANUS.—Antitoxin in.

Barth (*Sem. Méd.*, March 8) reports the case of a lad, aged 18, who on January 9th, 1893, without having received any blow and without there being any wound or excoriation on his body, was attacked with pains in the loins, trismus, contracture of the nuchal muscles, &c. In spite of tolerably large doses of chloral and bromide of potassium (8 grammes of each) on January 16th, acute exacerbation of the symptoms occurred, there being violent contracture with convulsive rigidity not only of the trunk but of the thighs, constriction of the pharynx, and spasmodic spitting. Several similar attacks occurred during the day, and the patient's condition became very critical. At 5 p.m. Roux injected under the skin of the abdomen 50 c.c. of antitoxin serum of the potency of 10 millions. The same quantity was injected at 8 o'clock and again at 11 o'clock the same evening. The patient passed an extremely restless night, the muscular rigidity being persistent and very painful. On the 17th a fourth injection of 50 c.c. was given, and in the course of the day a slight but distinct remission of all the symptoms was observable. In the evening a fifth injection was given, and venesection to 25 grammes was performed for experimental purposes. This blood, taken after the patient had received in all 250 c.c. of serum, was antitoxic in the proportion of 10 parts of blood to 1 of toxine; 1 c.c. was sufficient to immunise a guinea-pig. On the 18th the improvement continued, and no injection was given. On the 19th contracture was again very pronounced, especially about the trunk, and an injection of 20 c.c. was given at 1 p.m. During the remainder of the day the patient was fairly quiet. On the 21st, after a second venesection to 25 grammes, a final injection of 30 c.c. was given. The blood drawn was found to be antitoxic in the proportion of 2 parts of blood to 1 of toxine. From this time forward improvement went on steadily, and on February 10th cure was complete. Barth says this observation shows the almost absolute harmlessness of subcutaneous injections of serum even in the relatively large dose that was given (300 c.c. in seven injections). There was scarcely any local reaction—only a little tension without redness or inflammation at the sites of injection; this disappeared in a few days. A considerable rise of temperature was noted during the 24 hours following the first injections. This febrile disturbance, however, subsided rapidly, and did not recur; but two days later profuse sweating took place, followed by an urticarial

eruption, which lasted 36 hours. Barth meets the possible objection that the fact that chloral and bromide of potassium were used concurrently with the injections made the real efficacy of the latter somewhat doubtful, by pointing out that as long as the former treatment alone was employed the symptoms became rapidly worse. (Epitome of the British Medical Journal, March 18, 1893, p. 43.)

TRIONAL AS A HYPNOTIC.

In the *Neurologisches Centralblatt*, Dr. Brie of Bonn has published a paper on this subject. Trional has similar molecule to sulphonal, which contains, however, three ethyl groups to the two which sulphonal has, while tetronal, on the other hand, contains four. It can be obtained at rather less than 2s. an ounce. It is a white powder, very insoluble in water at the ordinary temperature, more soluble in hot water and easily soluble in alcohol or ether. It was given to forty-two patients in an asylum and was only rejected by one excited maniac, and as he at this time refused food also this has little significance. All the others took it readily, amongst them being some who violently resisted the administration of opium and other hypnotics. Of the patients eleven were the subjects of melancholia and in these a sound sleep of seven to nine hours was obtained with the drug. In the milder cases 1 gramme was sufficient for this ; in the more severe ones 2 grammes were better, preventing a too early awakening. No unpleasant after-effects were experienced even after administration of the drug nightly through several successive weeks. In four cases of melancholia with excitement good results were also obtained, and in the cases of mania—the most severe test of all for a new hypnotic—the results were highly satisfactory. In only one did vomiting follow the administration after a few hours and it was doubtful whether the gastric disturbance was not due to some other cause. Some patients seemed a little tired on the following morning and others complained of an intoxicating feeling after taking it. In cases in which sleeplessness with hallucinations was a marked symptom trional was effective in inducing long sleep and the same effect was observed in cases of psychical disturbance secondary to other disease. In short, Dr. Brie regards trional as one of the best and most reliable of hypnotics and he believes it will replace sulphonal. It is almost tasteless, easily administered, quick in its action and without unpleasant after-effects. (The Lancet, January 21, 1893, p. 162.)

TRIONAL.

Boettiger (*Berl. klin. Woch.*, October 17, 1892) has used trional in 75 cases in Professor Hitzig's clinic. The single evening dose is from 1 to 4 g. (1 or 2 g. was mostly used). It was occasionally

given in divided doses during the day. Any systematic treatment was not interrupted. The cases fall into three groups: (1) Simple sleeplessness occurring in functional or organic nervous disease. Uninterrupted and mostly deep sleep occurred in from 15 to 45 minutes. In only one case was any giddiness or other ill effect noted on the following day. In some cases the drug was used every evening for two or three weeks without losing its effect. (2) Sleeplessness with bodily pain. Here the results were not nearly so good. In one case referred to of severe hypochondriasis, the result was variable according as there was pain. As regards the morphine and cocaine habits, the author unlike Schäfer (*Epitome*, August 20, 1892, par. 166), found it useful in one case. (3) The third group, including patients with mental disease, is divided into two parts according as the sleeplessness was accompanied by moderate or severe mental excitement, &c. In only 2 of 33 cases of the former class was there no hypnotic action. The drug had no effect on the mental condition. In the second class the results were variable. Whether larger doses would have been more efficient is doubtful; unpleasant results have been noted after such larger doses. The author refers to 5 cases of mental disease with marked excitement, in which fractional doses were given with the best results, but he adds that the number of the cases was too small. The drug was given by the rectum, usually in 2-g. doses, in 16 cases. It acted as promptly and efficiently as when given by the mouth. The author concludes that trional is an excellent hypnotic and sedative, and without unpleasant results when given in moderate doses. Sleep is often induced in fifteen minutes. The drug is without effect in sleeplessness due to bodily pain, in acute alcoholism, and in cases of great mental excitement and motor restlessness. Trional has a more marked and prompt action than chloralamide, 2-g. of the former corresponding to 3 or 4-g. of the latter. Amylenhydrate approaches nearer to trional in its effects. In some cases trional may take the place of hyoscine, yet the subcutaneous injection of the latter is preferable in great mental excitement. (Epitome of the British Medical Journal, November 5, 1892, p. 75.)

URÆMIC DYSPNŒA.—Nitrites in.

In uræmic dyspnœa I have been at times disappointed in the use of nitrites. Scattered through the journals are many records of the utility both of nitro-glycerine and of amyl nitrite in this condition. I also have found them to be advantageous, yet they have often failed. They are indeed well borne in large doses, but the relief they give is usually transient. Perhaps it may be that uræmic dyspnœa owns another cause besides those which are the chief factors in cardiac and pulmonary lesions.

M. Huchard is of opinion that even in that altered condition of the arterial walls which often so long precedes renal disease (and which may indeed terminate life by the cardiac troubles it induces, apart from renal disease) toxic products may accumulate in the blood, because the kidney is unable from the changes in its vessels to eliminate them. He adduces in support of his views the non-toxic effect of the urine in these cases, and he looks on the dyspnœa which occurs as the result of the reaction on the body of toxines which would have been eliminated had the kidney been perfectly healthy. In Bright's disease this toxic material must often be present, and it seems to be possible that in some cases it may exert its influence so strongly as to neutralise the effects of the nitrite molecule, as I have shown that barium neutralises it outside the body. There must be great variations in the amount of toxic material present at various times, and it may be that this variation accounts for the different effects produced by nitrites under apparently the same conditions. Nitrites and nitro-glycerine cannot be relied upon to combat the high tension which is often present long before renal disease presents itself. They act quickly, but not continuously, for they are easily eliminated. There is reason to believe, too, that the tissues become accustomed to them if they are given frequently, and are thus less influenced by them; hence I believe that their frequent administration is not desirable in this condition, which, as M. Huchard and others have pointed out, should be met by the patient being placed on a milk diet, and by the administration of eliminants. To relieve, however, some of the discomforts arising from high tension—such as headache, heaviness, and dyspnœa—the administration of liquor trinitrini or the nitrites is often of great service, and in the dyspnœic paroxysms which accompany the heightened tension from arterial changes when cardiac dilatation has commenced, these drugs are of the greatest value if they are given in sufficient doses. Let me lay stress on the word "sufficient." The doses in these cases must usually be large, and an amount which will dilate the vessels ordinarily very fully may have too slight an effect to be of service in chronic Bright's disease; yet even in this ailment full doses may at times produce alarming symptoms, and even moderate amounts may give rise to discomforts. It is never wise to commence the administration of nitrites and nitro-glycerine with large doses. (Dr. D. T. Leech, Croonian Lectures, The Lancet, July 15, 1893, p. 127.)

VOMITING.—Nitro-Glycerine in.

The writer has used nitro-glycerine systematically for the last three years in every form of vomiting he has met with, and as it is a drug which is not incompatible with other drugs likely to

be employed under such circumstances, while it has proved of the greatest service throughout, he thinks it may be as well to record this use for it, as he can find no mention of it as a general remedy in vomiting. In vomiting in gastric catarrh, whether adult or infantile, acute or chronic, alcoholic or anæmic, he has found it to act almost as a specific. The vomiting ceases at once. In a case of vomiting in advanced pregnancy he found it of the greatest service, and in some cerebral cases it also markedly checked the sickness. In peritonitis alone it increased the vomiting, not, however, to a distressing extent, and the effect soon passed off. He ventures to suggest that this may prove a point of diagnostic value in doubtful cases. In vomiting in connection with pulmonary phthisis it proved of little value, where atropine stopped it for the time. In combination with catechu it acted very well in several cases of lienteric diarrhœa. The vomiting of influenza was often relieved by it, though not to the same extent as by atropine. He has seen no bad effects from its use.

(Mr. Rowland Humphreys, British Medical Journal, August 1, 1893, p. 693.)

AFFECTIONS OF THE NERVOUS SYSTEM.

ARSENICAL NEURITIS.

Prof. Osler records a case of Hodgkin's disease in which 33 drachms and 18 minims of Fowler's solution were taken in 75 days. Giving rise to marked sensory changes, gradual impairment of muscular power and loss of the knee-jerks, undoubted indications of peripheral neuritis, while there was in addition marked pigmentation of the skin. Prof. Osler remarking upon the rarity with which medicinal doses of arsenic give rise to serious nervous disturbance says :—

During the first few years of practice I was in the habit of using arsenic somewhat sparingly, but after the appearance of Bramwell's paper in 1877, on the use of this drug in pernicious anæmia, I began in the cases which came under my observation to use it more freely, and since that time in various forms of anæmia, in leukæmia, in Hodgkin's disease, and chorea minor I have used it in what might be called large doses. My rule has been to begin with two or three minims three times a day, and gradually increase the dose every four or five days until the patient took ten, fifteen or twenty minims of Fowler's solution three times a day. I preferred to see the physiological effects, either itching of the skin, slight œdema, an attack of

vomiting, or diarrhœa. The quantity which will induce these symptoms varies in different individuals, and in the anæmia cases those who bear the drug best seem to improve the most rapidly. The largest doses I have given were in a case of pernicious anæmia, in which the patient had taken during his primary attack with the greatest benefit for several weeks twenty minims of Fowler's solution three times a day; and had reached in his relapse thirty minims three times a day, when at the end of a week he had an attack of itching of the eye-lids, and œdema over the eye-brows. In the chorea minor of children, who, as is well known, stand arsenic well, it is a common experience to find that twelve and fifteen minims of the liquor arsenicalis may be given daily without ill effects. Until two years ago, though I had often seen the symptoms of saturation above referred to, I had never seen any serious toxic symptoms referable to the nervous system, but we had at that time in the ward a patient with pernicious anæmia who had taken for a long time large doses of Fowler's solution, and under its use had feelings of numbness and tingling in the feet and legs, which we thought might be due to the arsenic. This may not, however, have been so, since these advanced cases not infrequently have sclerosis of the posterior columns of the cord, in connection with which loss of the knee jerk and sensory changes in the legs may develop. I have repeatedly in my clinics and ward class talks referred to the apparent harmlessness, so far as my experience went, of Fowler's solution. Arsenical neuritis from accidental poisoning is not very uncommon. Less commonly it results from accidental contamination in certain occupations. It is claimed by Folsom, Putnam, and others in Boston, that cases may be of "domestic origin," that is, due to the absorption of extremely small quantities of arsenic with the dust from wall papers, carpets, or curtains. Cases in which the toxic symptoms have developed in consequence of the administration of arsenic as a medicine are in reality extremely rare. A few years ago Dr. J. J. Putnam collected a series of cases in which serious poisonous effects had followed the long continued use of medicinal doses. A majority of them cannot be said to be very satisfactory, as the reports are imperfect as to the amount taken and as to the symptoms. Among the cases referred to are, however, some which would indicate very clearly that the prolonged use of even moderate doses may cause symptoms of a wide-spread neuritis. Individual idiosyncrasy plays, no doubt, an important rôle; tolerance may as a rule be established, as with the Styrian arsenic eaters, but such cases as the one before you show that we must be on our guard in the protracted administration of the drug. (Montreal Medical Journal, April, 1893, p. 721.)

DELIRIUM TREMENS.—Typhoid Stage of.

As this stage develops, the delirium becomes quiet. The patient loses his fear of the hallucinations, nor indeed are hallucinations frequent, if they exist at all. Illusions, however, are very frequent early in this stage, and are not usually of a persecutory nature. The patient tugs at his shackles, and thinks he holds the reins of a team of horses. This illusion is very common. Illusions of hearing are frequent. The typhoid state gradually deepens. The patient is extremely tremulous. He is never awake, and rarely asleep. He is easy to control, but needs constant watching, just as a case of dementia would. He may get up and wander aimlessly about. His speech becomes more and more of a mumble, and finally entirely unintelligible. When sharply told to put out his tongue he protrudes it slowly. He passes urine in and fæces in bed or anywhere. Albuminuria is usual. The pulse is weak and rapid. There is always some elevation of temperature, although it rarely rises above 102°, until the end. Cheyne-Stokes' breathing is occasionally observed. The conjunctivæ are injected, the eyes watery, and the eyelashes frequently glued together. The pupils are normal, or react slowly. The patient lies with his mouth open, his tongue and lips dry, and his breath extremely fetid. One of the cases observed developed a parotiditis, probably by infection through the ducts from this foul mouth. The patient usually takes sufficient food. The bowels are constipated. The subject lies in this condition for six or eight weeks, or even longer. He gradually grows weaker. One day his temperature runs higher than usual, reaches 104° or 105°, or even higher (in one case 108·2°), and he then dies. A small proportion of cases recover, even at this stage of the disease. The great majority die. This sequel to the violent stage of delirium tremens, for all that it is hardly mentioned in the literature, is by no means rare. At the City Hospital it was often called alcoholic meningitis. Leptomeningitis undoubtedly does occur with alcoholism as an important etiologic factor, but when it occurs it presents more definite signs of meningeal inflammation. Paralysis of the third nerve occurred in one alcoholic case in which undoubted meningitis was proved at the necropsy. Näke describes a type of chronic delirium tremens which corresponds to this typhoid stage. He uses the term typhoid in describing it. The *chronic continued delirium tremens* of Rose may be the same. However, many of the chronic forms that have been described seem to be rather cases of true insanity. The descriptions of these forms are often unsatisfactory. (Dr. Twitchell, Medical News, July 29, 1893, p. 115.)

[See also article "On the Treatment of Delirium Tremens," by Dr. Twitchell, at p. 154 of this volume of the *Retrospect.*]

ERB'S PARALYSIS.

Meyer (*Deut. med. Woch.*, August 24, 1893) says that experimentally as well as anatomically this form of paralysis has been shown to be peripheral in origin and due to a lesion of the brachial plexus between the points where the fifth and sixth nerves emerge from the scaleni muscles and unite, and where the suprascapular nerve comes off. Thus it includes (1) The suprascapular nerve ; (2) a branch of the trunk of the united radial and axillary fibres ; and (3) a branch of the trunk of the united musculo-cutaneous and median fibres. Faradisation of a corresponding point (Erb's point) produces contraction of the deltoid, biceps, brachialis internus, supinator, longus and brevis, infraspinatus, subscapularis, and perhaps the supraspinatus. The affection need not involve all these muscles, and great differences may exist owing to variation in nerve distribution and extent of the disease. The difficulty in examining certain muscles must also be considered. As regards sensation, the ulnar nerve region remains intact. The following are causes : (1) Fall on the shoulder ; (2) over-adduction of arm ; (3) over-adduction with raising of arm ; (4) crushing of shoulder region and trauma ; (5) direct pressure ; and (6) essential neuritis. The author then relates two cases : (1) A man, aged 21, had among other wounds one in the upper angle of the cervical triangle. After the wound healed the arm hung flaccid, and there were lancinating pains in it. An adherent scar $1\frac{1}{2}$ cm. long corresponded in situation to the brachial plexus. The biceps, brachialis internus, supinator longus, deltoid, teres major were certainly paralysed ; the supinator brevis, teres minor, supra and infraspinati and subscapularis more doubtfully. There were some sensation troubles. The muscles did not react to faradism. The case also shows that when the cucullaris, pectoralis, and serratus anticus are involved the lesion must be an extensive one. In twelve days there was some improvement. (2) A birth palsy. A child aged 5 days, had been delivered with forceps. On the second day it was noted that the child did not move its arm. The biceps, supinator longus, and deltoid seemed to be paralysed, and perhaps the cucullaris and pectoralis. Later there was great improvement, the supinator longus, as has previously been noticed, being the last to recover. It is not easy to determine which muscles are paralysed in a child. Perhaps the rapid recovery was connected with the electrical treatment. (Epitome of the British Medical Journal, September 30, 1893, p. 53.)

GENERAL PARALYSIS OF THE INSANE.—Reflexes in.

At the American Ophthalmological Society, on July 19, 1893, Dr. Charles A. Oliver, of Philadelphia, read a paper entitled

"The Relation of the Patellar Tendon-reflex to some of the Ocular Reflexes found in General Paralysis of the Insane." In some of the cases in the second stage of the disease, especially when the patellar tendon-reflexes were unequally exaggerated, there appeared to be an irregular and unequal spastic contraction of the two irides, causing irregularities in pin-point pupil-forms. In a few cases, especially in the third stage, in which the patellar tendon-reflexes were unequally diminished, the pupil-size, though small, and its shape, though somewhat irregular, seemed to be but little acted upon by any powerful mydriatic. In many cases, especially in comparatively young subjects in the third stage, in which the patellar tendon-reflexes were unequally diminished, there appeared to be an unequal paralytic condition of the two irides; the pupillary dilatation manifesting itself at times, though, not as a rule, in the eye with the greater amount of objective optic-nerve degeneration and retinal change. In a few cases (especially in men beyond middle life) in the third stage in which the patellar reflexes were markedly diminished and ataxia was quite pronounced, there were marked temporary asymmetries of pupillary form, one often being quite small and irregular for several examinations, while its fellow was large and ovoid or oval. In quite a number of cases, especially in the advanced stages of the disease (although seen in a number of cases in their earliest stages) in which the patellar tendon-reflexes were unequally exaggerated or diminished, there was a failure of the irides to respond to even major degrees of light stimulus; this being true not only for those subjects exhibiting a true spastic myosis, but more especially in those instances in which, with partial dilatation of the pupil, mydriatics failed to act. In many instances, especially in the older cases in which the patellar tendon-reflexes were, as a rule, unequally diminished or even lost, there was not only failure of iris-response to the strongest light-stimulus carefully thrown upon the retina, but when obtainable the irides seemed to fail to react to the various coarse and rough subjective and objective procedures necessary to evolve both separated and associated efforts for accommodation and associated efforts for convergence. In some instances in which ciliary muscle innervation could be satisfactorily obtained, both the spastic excitation and the paralytic condition, at times found by subjective reading-tests and objective study with the retinoscope, seemed to be in direct ratio with the patellar tendon-reflexes and the iridic changes. In quite a number of cases in which there was marked inequality of the pupils, with more or less want of reaction of the irides to light-stimulus, the patellar tendon-reflex on the side of the larger pupil seemed to be the more greatly diminished. In a number of

instances, especially during the very earliest stages of the disease, when the patellar tendon-reflexes were beginning to lessen to unequal degrees, there often appeared momentary secondary ataxic dilatation of the pupil during exposure to strong light-stimulation. In many cases, especially during the second stage, when the patellar tendon-reflexes began to become irregular and inconstant, pupillary inequalities, as expressive of unequal iris-innervation and action, became more and more constant. (Medical News, July 29, 1893, p. 137.)

LOCOMOTOR ATAXY.—Mechanical Treatment of. (Hirschberg, *Bull. Gen. de Therapeutique*, Jan., 1893).—The conclusions of the writer as regards the utility of Frenkel's plan of treatment of locomotor ataxia are as follows :—(1) It is possible to greatly improve the ataxic movement in tabetics by the method of Dr. Frenkel. (2) The gymnastic exercises explain the reason of augmentation and development of muscular force in the affected members. (3) The exercises in making the muscular contractions under the control of the will of the patient ameliorate the incoördination. (4) In bettering the *morale* of the patient by giving him more confidence in his extremities, the persistent ideas of pathophopia which cause so much misery in tabetics are dispersed. (5) The treatment is indicated in all stages of locomotor ataxia. Best results, however, are obtained when it is instituted before locomotion becomes completely impeded. (6) Treatment is contra-indicated when the course of the disease is very rapid ; that is to say, when the clinical picture is completely developed in less than two years ; also, when the general condition of the patient is particularly bad, and especially when the articulations are affected. (7) The treatment does not exercise any influence on the cardinal symptoms of tabes dorsalis, with the exception of the ataxia. It might be said that Frenkel's treatment in principle distinguishes three categories of movements :—(1) Simple muscular contractions ; that is to say, of one muscle or a physiological series of muscles. (2) Simple coördinate movements ; for instance, touching the end of the nose with the index finger. (3) Complex coördinate movements, such as writing. In applying the treatment, the practice is to begin with the simpler passive movements, then gradually assume the more complex. (Journal of Nervous and Mental Disease, July, 1893, p. 503.)

MIGRAINE AND HEADACHE.—Nitrites in. For the relief of headache the nitrite and nitro-glycerine have been much employed, and considerable success has been recorded from their use. Amyl nitrite has been specially credited with

the power of relieving migraine, and sometimes with curing it. That it will at times cut short an attack no one who has used it extensively, as I have done, can doubt, but in my hands its failures have far outnumbered its successes. Even if, as has been suggested, the immediate cause of suffering in some forms of migraine is connected with local vascular contraction, it is not likely that a very temporary dilatation of the vessels could be relied upon to restore a normal condition. We know, however, how suddenly tension may fall, and inhalation of amyl nitrite coming at the right time may be the final cause of relief, the dilatation which it causes not being followed by contraction; but perhaps, as Pick long ago suggested, it is sometimes probably a kind of "surprised influence," which immediately takes away the pain when nitrite of amyl is inhaled, just as any other influence, physical or mental, may have the same effect. It not unfrequently happens that after amyl nitrite-inhalation has succeeded once or twice it subsequently quite fails to give relief. The drug, indeed, has not maintained its promise; the utility attributed to it in the account of earlier reporters has not been borne out by frequent experience. It does not seem to be likely that nitrite of amyl can permanently cure migraine. Nitrite of amyl has been used to combat slight forms of headache, and here, too, it is sometimes successful in giving relief; but as it at times greatly intensifies the pain its general employment has fallen into disrepute. Nitro-glycerine is probably a far more effective remedy than amyl nitrite. Dr. Hammond and many others have borne strong testimony to its utility in migraine. It is naturally most useful in those attacks in which the face is pale and the radial artery tense. I have sometimes seen the administration of a drop or two of nitro-glycerine in these conditions give rapid and enduring relief, yet this effect is by no means always to be seen, and in neurotic patients and those with low tension and an easily excited circulation discomforts may be considerably aggravated. I believe, however, that nitro-glycerine might with advantage be more frequently used for the relief of migraine and headache generally if care were taken to employ it only where the circulatory conditions point to some degree of high tension. That migraine and other forms of headache have permanently disappeared under its use I do not doubt, but it is by no means so certain that this effect has followed because of their use. The dose of nitro-glycerine given for the relief of headache should always be in the first place small. Even a single drop, if the case be not suitable, may prove very unpleasant to the patient. It is sufficient in doubtful cases, at least, to commence with half a drop of liquor trinitrini. If slight relief or no relief ensues in half an hour a drop may be given; and later, if necessary, larger doses

should be administered. (Dr. D. T. Leech, Croonian Lectures, The Lancet, July 15, 1893, p. 127.)

MIGRAINE, WITH THIRD NERVE PALSY.

At the Ophthalmological Society, on July 7, 1893, Mr. Snell (Sheffield) related two cases of recurrent third nerve palsy associated with migraine. One was in a young man aged 27. Migraine had existed since the age of ten, but only for the last seven years had the eye been closed with the attacks. The attacks occurred at first at intervals of about eight weeks, then at every two or three weeks, and lasted for three or four days. The palsy of the third nerve was practically complete ; ptosis and paralysis of the ocular muscles, together with dilated pupil and palsy of accommodation. The attacks commenced with vomiting and headache. The ocular palsy in the interval did not completely pass off, and the latest accounts, two years after he had last been seen, indicated that the drooping of the lid was becoming more permanent. The second case was in a girl aged eighteen. She had two attacks at intervals of four years, though migraine outbreaks continued in the interval. Each time she had made a perfect recovery, though the third nerve was not, at the worst, as completely involved as in the first case. Recovery was much longer in taking place. Mr. Snell gave additional particulars of a similar case he had brought to the notice of the Society some years ago. He remarked that the shorter the interval the more rapid appeared to be the recovery in these cases, and also that the affection was always monocular and showed no disposition to affect the other eye. (The Lancet, July 15, 1893, p. 139.)

PERIPHEREAL NEURITIS.—Two exceptional cases.

At the Clinical Society, on March 24, 1893, Dr. Hale White described two exceptional cases. One was septicæmic ; the other was due to lead, and presented unilateral, palatal, and faucial paralysis, and other rare symptoms. *Case 1* : A man, aged 33, came into the hospital suffering from mitral regurgitation, great œdema of the lower extremities, and an unhealthy ulcer on the left leg. Two days afterwards the ulcer had doubled in size, it was very foul, and the patient had a high temperature. He complained that he could not bend his hands, and it was found that he had wrist-drop on both sides. The weakness of the extensors increased so that three days afterwards flexion and extension of the hand, wrist, and elbow on both sides were paralysed, supination was very weak, and pronation was completely paralysed. The movements of the shoulders were weak. The supinator longus on both sides was paralysed. There was no loss of sensation, but the muscles and the musculo-spiral

nerves were extremely tender. Two days after this, as the ulceration was rapidly spreading, the leg was amputated at the knee; the symptoms of neuritis were worse. *Case 2*: A man, aged 45, who had had lead colic twice, and who worked in white lead works, was suddenly taken ill with very acute pains in his limbs and body, especially the lumbar region. On admission, he was found to be suffering from intense abdominal pain, with severe pain and degeneration in some of the muscles. The periphery of next field of vision was considerably constricted. On the right side the arch of the soft palate was much lower than on the left. The right posterior pillar of the fauces projected inwards more than the left. The uvula was not deflected. Taste was impaired. Food did not return through the nose. The left wrist was slightly swollen. The muscles of the limbs and the accessible nerves were all extremely tender to pressure. There was marked double wrist-drop. The flexors were weak. Inspiration was normal. The lower extremities were in all movements almost completely paralysed. The pupils were equal. There was early optic neuritis. The bowels were confined, and there was vomiting. The knee-jerks and plantar reflexes were lively. He remained under observation six weeks, and was discharged well. During his stay in hospital the following additional symptoms were observed: Painful swelling of various joints with subsequent grating in some; numbness, coldness, paræsthesia, and loss of temperature sense in various parts of the body. The muscle sense in the hands was also impaired. (British Medical Journal, April 1, 1893, p. 697.)

POLYMYOSITIS AND NEUROMYOSITIS.

Senator (*Deut. med. Woch.*, September 28, 1893) relates the following two cases of polymyositis. (1) A man, aged 50, who had suffered from glycosuria for some five years, was seized with pain in the right and afterwards in the left calf. The muscles were very tender on pressure. Eventually the thigh, arm, and chest muscles were involved. Bluish-red spots also appeared over the affected muscles. Fever was present. Some few days later signs of pneumonia of the left base appeared. The urine contained sugar and a trace of albumen. The patient died. Only a piece of muscle could be examined; it showed a very marked interstitial myositis. The striation of the muscle fibres was distinct, and there was no sign of degeneration in them. The author accounts for this by the short duration of the illness. The vessels were much engorged. No micro-organisms could be found. The author would look upon this myositis as an acute primary disease. (2) A man, aged 40, was seized shortly after eating some stale crabs with *malaise*, loss of appetite, sleeplessness, pain in the back, and painful stiffness in

the muscles. These symptoms persisted for two or three weeks. When seen by the author he was restless, and complained of severe pains in the extremities. A few days afterwards there was swelling of both right extremities, and the skin over them was red. Later, the left arm and leg were also affected. The temperature was about 38° C. Symptoms of acute nephritis supervened. Some six weeks after the onset, the swelling began to disappear, and the patient steadily got well. The author says that the nephritis must be looked upon as a complication of the myositis, and was probably due to the same cause. There was no evidence at all of trichinosis. The disease was probably due to an auto-intoxication from the alimentary canal. Polymyositis is distinguished from neuromyositis by there being no paralysis (since any difficulty in moving is due to the pain and swelling of the muscles), no tenderness of nerve trunks, no anæsthesia, and no wasting of muscles in the former, whereas there is no swelling or inflammatory œdema of the muscles or skin in the latter. (Epitome of the British Medical Journal, October 21, 1893, p. 65.)

PSEUDO-BULBAR PARALYSIS.

At the Clinical Society, on May 12, 1893, Dr. Newton Pitt gave the clinical history of a case of pseudo-bulbar paralysis which was probably due to a lesion in each cerebral hemisphere. The patient was a man aged fifty, who had already been exhibited at the Society. At Christmas he had an attack of slight right hemiplegia without aphasia, and in February an attack of paresis of the left arm and face without loss of consciousness. Since this time he had been quite unable to move the muscles of his face, lips, tongue, larynx or pharynx voluntarily, but all the reflex movements were preserved. The muscles were not wasted, there was no fibrillar twitching and the electrical conditions were unaltered. The patient had chronic Bright's disease ; he was fed entirely by an œsophageal tube. Dr. Pitt referred to the literature of the subject, especially to the abstract of Dr. Bouley's paper in the fourteenth volume of *Brain*, p. 352. These cases differed from those of progressive bulbar paralysis, especially in the history of two unilateral attacks, in the sudden onset and in the absence of all wasting and degenerative changes in the muscles. The lesions were generally patches of softening or hemorrhage, most frequently in the outer third of each lenticular nucleus, but they might be situated in the second and third frontal lobes. The paralysis in the present case was more complete and extensive than in the hitherto recorded cases which had survived more than a few days. In reply to a question, Dr. Pitt added that there was no definite aphasia at any time. (The Lancet, May 20, 1893, p. 1197.)

PUERPERAL NEURITIS.

Lamy (*Gazette hebd. de Médecine et de Chirurgie*, 1893, No. 15, p. 170) describes a condition of neuritis existing in the puerperal state which differs in several important characteristics from the ordinary type. This form, which consists principally of pain and paralysis, with muscular atrophy, involves most frequently the lower limbs, and has often been ascribed to pressure on the pelvic nerves by the fœtal head. All cases do not admit of this explanation. Moebius attributes puerperal paralysis to infection, and shows the analogy to paralyses following erysipelas or typhoid, considering the latter due to parenchymatous and peripheral change. It often develops many days after a simple labour, and amid symptoms indicating puerperal infection. It frequently happens that paralyses of this kind limit themselves to the group of muscles supplied by the external popliteal nerve. The author divides this disease into three groups: Infectious, traumatic, and neuritic by propagation. Of the first, we find one class in which the paralysis and pain extend to all four extremities and trunk; of the second, the want of power is localised, infecting only the upper or lower limb. Of the general neuritis only three cases have yet been reported. The constitutional symptoms are similar to those of ordinary neuritis, persistent vomiting seeming to be somewhat characteristic. The onset of the paresis is announced by troubles of sensation, formications, pinching of limbs, and increasing muscular debility, particularly attacking the extensors of the hand and foot. The walk is peculiar; a light passing hyper- or hypo-æsthesia may be present. The muscular masses, tendons, and nerve trunks are tender on pressure, independently of spontaneous pains. These symptoms amend when the period of actual paresis comes on. Tendon reflexes are abolished, and reactions of degeneration have been witnessed in the atrophied muscles. In one case death took place in three months, in a condition of general infection. The muscles of the trunk and abdomen had been attacked as well as the sphincters. The spinal column had also been affected. The disease is very difficult to diagnosticate from "acute central myelitis." The fact of its appearing after childbirth, or with symptoms of infection, will aid in the diagnosis. The disease tends towards recovery in from eighteen months to two years. (The American Journal of the Medical Sciences, July, 1893, p. 116.)

SCIATICA.—Treatment.

Sciatica is nearly always some grade of neuritis. At least twenty years ago I began to treat such sciatica by local splint rest, with from two to three weeks of local use of ice if rest alone failed me. Although I have over and over called attention

to these means, they have not so captured professional confidence as I could desire. Last year I wrote on them a lecture in the International Series, where it is, I fear, pretty well buried amidst some good and some poor clinical lectures. As I have of late modified the treatment, and am sure from my own experience and that of Professor Osler, Dr. Sinkler, and others, of its great value, I beg you to consider it with me anew. In any obstinate sciatica, where I can exclude spinal cord disease, constitutional states, tumours, &c., I put my case in bed. Then I give cod liver oil, iron at need, full diet, and milk between meals. A long flannel bandage is put on at once rather tightly from the foot to the groin, and renewed twice a day. At the side of the limb a long splint is secured by a few turns of bandage. The splint should reach from axilla to ankle, the knee being bent a little, the heel secured from pressure. The splint and bandage are kept in place from two to four weeks, night and day; once a day, when these are removed, the leg is slowly and very moderately flexed and extended. This treatment is in constant use at the Infirmary for Nervous Disease. If it fails, it is usually because the malady is at first, or has become, spinal. The rationale of its use is, I think, clear. (1) The flannel bandage lessens the blood in the leg. (2) It protects the whole skin surface from the excitation of contacts. (3) The enforced immobility makes all motion impossible, and so the two uses of the nerve cease. It is in splint, and we get physiological rest. Since I have used the bandage the cumbersome use of ice along the nerve-tract is less often required. At the close of the treatment, massage, used with extreme care, may hurry the recovery. (Dr. Weir Mitchell, New York Medical Record, December 24, 1892, p. 723.)

SYNDROME OF BENEDICKT.

This is what Charcot proposes to call the symptom complex, first pointed out by Benedickt, of paralysis of the motor oculi, on one side associated with trembling and some loss of strength of the upper extremity on the opposite side. A case exemplifying this condition was recently presented by Charcot at one of his clinics at the Salpetriere. The patient was a man who had always had very good health. There was a slight history of tuberculosis in his family, and one of his brothers, who had pulmonary catarrh for a long time, had died after an operation for costal caries. One morning, while going downstairs on his way to work, he was suddenly taken with a feeling as if something was the matter with his head, and stumbled. In a few moments he noticed that he saw double, and when he attempted to work he found that he could not elevate the left lid. He continued to work, however, overcoming the diplopia

by covering the left eye with a handkerchief. About eleven hours afterward he was obliged to stop work on account of incoördinate movements in the right hand, which soon became a slow continual tremor. On examination next day he was found to have a nearly complete paralysis of the third nerve on the left side. The tremor was of a mixed type. The rapidity was from about three to four vibrations per second. It was intentional in character; that is to say, it manifested itself especially on voluntary movement, and consisted essentially in alternating pronation and supination. There was no limitation in the visual fields, no disturbance of sensation, papillæ remained normal, and auscultation was negative. The seat of the lesion in Benedickt's syndrome is in the cerebral peduncle corresponding to the side on which the paralysis of the third nerve shows itself. The nature of the lesion Charcot considers to be a small hemorrhage, or not improbably in this case deposit of tubercle. The author takes pains to point out that this condition is to be carefully differentiated from hysteria and sclerosis en plaques. (Journal of Nervous and Mental Disease, July, 1893, p. 503.)

SYPHILIS OF THE SPINAL CORD.

At the New York Neurological Society, on April 4, 1893, Dr. B. Sachs read a paper on "Syphilis of the Spinal Cord." He reviewed some recent work of Erb, who has sought to establish a "type" of spinal-cord disease which he proposes to label "syphilitic spinal paralysis." This special type is to be recognised by the following characteristics:—(1) The usual symptoms of spastic paraplegia, with its peculiar gait, carriage, and movements. (2) The reflexes are much exaggerated. (3) The muscular contractures are slight, as compared with the exaggeration of the reflexes. (4) Involvement of the bladder. (5) A slight but distinct disturbance of sensation. (6) Gradual onset of the disease. (7) A decided tendency to improvement. Dr. Sachs did not dispute the existence and the propriety of Erb's type of spinal disease, but he expressed the belief that there are other and broader points of diagnosis that should not be disregarded. To illustrate these points, he gave the history of four cases of undoubted syphilitic disease of the spinal cord. In these cases the following were the salient features which led to the diagnosis: In three of them there was spastic paraplegia of the most pronounced type. In these the reflexes were greatly exaggerated. In two the muscular contractures were slight; in one they were extreme. In one there was permanent involvement of the bladder. In all but one sensation was disturbed. In two the onset was gradual. All had shown a decided tendency to improvement. In one instance there was a distinct atrophic paralysis, with all the

symptoms that pointed to a widespread affection of the gray matter of the cord. In one case, in which the diagnosis of syphilitic disease was most evident, the contractures were extreme ; the bladder remained persistently involved ; and bed-sores formed. Dr. Sachs said that the following points have impressed themselves on his mind as the more characteristic of spinal-cord syphilis :—(1) The unusual distribution of the disease over the greater portion of the cord, involving, in some cases, the cervical, lower dorsal, and lumbar enlargements. (2) The relatively slight intensity of the morbid process, as compared with the extensive area involved, as evidenced by the preservation of some of the functions of the cord, with complete loss of others. (3) A rapid subsidence of some symptoms and a very chronic persistence of others. (4) The frequent history of other symptoms pointing to syphilitic infection in the same or in other parts of the central nervous system. In syphilitic spinal-cord disease there is not, as in cases of acute myelitis, a morbid process that is rapidly destructive and that quickly advances through the entire cross-section of the cord, with symptoms due to loss of function of the various spinal systems. If the syphilitic disease be the result of a specific endarteritis of the vessels of the cord, we know that some, and by no means all, of those vessels are affected ; and that the disease advances slowly from one group to another. If there be diffuse specific infiltration, one part after the other is slowly invaded. The process has a remarkable tendency, too, to advance for a time and then to recede, whether as a result of treatment or not, and then possibly to increase with renewed force. If the infiltration start from the meninges, it most frequently invades the lateral columns first, often at symmetrical points, and advances very slowly from white to gray matter. The intensity of the process is spent upon the lateral columns ; hence the frequency of the spastic symptoms. It may invade the gray matter, giving rise to sensory symptoms, sometimes to atrophic symptoms. (Medical News, April 22, 1893, p. 445.)

TABETIC ARTHROPATHY.

Dr. Albert Sterne appends the following conclusions to an interesting paper on this subject :—

(1) Arthropathia tabidorum and the spontaneous fractures which occur in tabes patients are trophic affections, due to a general disturbance of nutrition in a weakened organism. (2) They stand in near relation to tabes dorsalis, if not directly connected with that disease. (3) These affections have a characteristic stamp. They may be traumatic in origin ; are so, however, in the minority of cases. (4) They occur in every stage of tabes, yet seem to have a certain predilection for the

pre-atactic period. (5) From a pathological-anatomical standpoint these affections should be considered in part as peculiar, their classification as arthritis deformans is not permissible. In part, however, they may be regarded as examples of the latter disease, and their commencement is often an intracapsular fracture. (6) The cause of these conditions is to be sought for in a degeneration of the peripheric nerves, a lesion probably constant in tabes. Furthermore, the neuritis of the spinal nerves stands to the sclerosis of the posterior columns of the cord as does the neuritis of the cranial nerves to the cerebral lesion. (7) The ataxy, the analgesy, and the fragilitas osseum are factors which influence considerably the course of these affections. They cannot, however, be looked upon as their causes. Each of these factors may be absent, most readily the ataxy. This fails in reality in at least one-half of all cases. (8) The therapy should be as conservative as possible. Recourse to surgical measures should be taken only in special instances. (New York Medical Record, January 28, 1893, p. 109.)

URÆMIA.—Hemiplegia in.

Boinet (*Rev. de Méd.*, December, 1892) draws attention to the different views on this subject. He relates the case of a man, aged 37, with general œdema, much albumen, and hypertrophied heart, who had five attacks of uræmia within a short time of each other. In the first two there was localised convulsion ; in the third attack hemiplegia followed the one-sided convulsions, and in the fourth and fifth there was hemiplegia alone. The hemiplegia disappaared with the coma. There was slight hemianæsthesia. There was deafness and amnesia lasting a fortnight after the attack. The patient improved so much that he was able to travel. Hemiplegia occurs in the atheromatous with interstitial nephritis. It coincides with the uræmic coma, disappearing with it. It may or may not be preceded by unilateral convulsions. The paralysis is rarely complete or lasting. It may possibly be followed by contracture. It is usually variable, being more complete in the morning and getting less in the evening. The symptoms may alternate with other uræmic manifestations. Facial paralysis and also aphasia have been observed. Usually the hemiplegia is accompanied by hemianæsthesia of a cortical type. The prognosis is grave, as most of the patients die. If the patient recovers, however, the hemiplegia passes off. The premonitory signs of uræmia, the previous symptoms of Bright's disease, &c., serve to establish the diagnosis. The condition has to be distinguished from cerebral hemorrhage (of renal origin), softening, cerebral syphilis, and perhaps from tuberculous meningitis. The author speaks well of bleeding. It abstracts some of the

poisoned blood and lessens the cerebral œdema. Atheroma has been supposed to connect uræmia with paralysis. Sometimes localised œdema of the brain has been noticed. Uræmic hemiplegia does not depend exclusively on cerebral œdema, and thus the toxic effects of the blood must be appealed to. (Epitome of the British Medical Journal, April 1, 1893, p. 49.)

AFFECTIONS OF THE CIRCULATORY SYSTEM.

ANEURISM AND HÆMOPTYSIS.

According to the experience of Dr. Hempelar, hæmoptysis in the course of aneurism may be independent of the aneurism, indirectly dependent on it, or due to perforation into the air-passages. Pulmonary infarction comes under the second heading, and the author says that tuberculosis not infrequently develops in the lung as a consequence of aneurism. He does not think that any pressure likely to be exerted on the pulmonary veins would produce such engorgement as to give rise to hemorrhage. Hæmoptysis due to arterio-sclerosis and interstitial nephritis also belongs here, as the aneurism and the vascular disease often own a common cause. Among 18 cases of aneurism recently observed, perforation into the air-passages occurred 7 times. In one of these 7 cases there was no hæmoptysis, and in 2 there were infarcts. In the remaining 4 cases there was premonitory hemorrhage in 3. The hæmoptysis began in one case five weeks, in the second eight days, and in the third four months before death. In the first two cases there could be no doubt that the hæmoptysis was due to the perforation. Clinically, a slight hæmoptysis, lasting four months, as in the third case, could only be due to infarcts or new growth. There was no evidence, either during life or after death, of such lesions. The author says that continued hæmoptysis in aneurism would appear to be not very infrequently caused by perforation, and less often by infarcts, as in two of his cases. Thus hemorrhage from these aneurisms may be profuse and quickly ending in death, or continued, premonitory, and lasting days, weeks, months, or even possibly years, before death.—*Berliner klinische Wochenschrift.* (New York Medical Record, March 11, 1893, p. 302.)

CARDIAC DROPSY.—Treatment.

Dr. R. Lépine regards the removal of an intercurrent pleuritic effusion as presenting obvious advantages, simple tapping being often sufficient to bring about an improvement in the cardiac condition. For the œdema of the feet and lower limbs, Southey's tubes are satisfactory, being kept in place by

collodion or strips of plaster, the part being dusted with iodoform and covered with a bandage. Venesection, even, may be advisable. Digitalin in solution in alcohol, and in fairly large doses, produces beneficial effects. Although he has used caffeine in large doses for some years with good results—very marked in some cases—it was not until he made use of it by subcutaneous injection that he obtained the best results. In order to produce free diuresis it must exert its action suddenly and rapidly. By this method a larger dose can be introduced into the circulation, and it is more rapidly eliminated.—*The Medical Week*, 1893, No. 7, p. 73. (American Journal of the Medical Sciences, April, 1893, p. 452.)

DIGITALIS IN AORTIC DISEASE.

There has been a widespread belief, which has often found utterance, that digitalis is indicated in disease of the mitral valve, but is contra-indicated in disease of the aortic valve. This belief is unphilosophical and in large part erroneous, although like many a delusion it enwraps a certain amount of truth. Aortic lesions are for the most part gradually developed ; and being gradually developed they allow time for the production of a hypertrophy which not rarely becomes more than compensatory. In such a case digitalis increases the distress ; but if there be relative weakness in a heart with aortic valvular disease, digitalis is just as important as though the mitral valve were affected. In a large proportion of cases mitral disease has been produced by an acute endocarditis ; and then comes the struggle for the heart to build its structure up. Under these circumstances digitalis is a most important remedy, and its use cannot be begun too early. Just as soon or even before there is any subsidence of the fever and acute processes, digitalis should be used. (Prof. H. C. Wood, Boston Medical and Surgical Journal, May 18, 1893, p. 483.)

DIGITALIS.—Contra-Indicated in certain cases of Mitral Diseases; its use in Acute Disease.

I wish to call attention to certain contra-indications to the use of digitalis in chronic heart disease. Of course, one of the greatest difficulties that overshadows or encumbers our use of digitalis is its tendency to disagree with the mucous membrane of the gastro-intestinal tract, and of course, therefore, any irritation or irritability of that mucous membrane is a contra-indication to the use of digitalis. But the special contra-indications which I shall dwell upon are much more hidden and less easily perceived and understood. Indeed, the first contra-indication took me fifteen years before I fully comprehended the force and power of it. I soon learnt in my practice of medicine that there was a set

of cases of mitral insufficiency in which the heart-power is not equal to the heart-work and in which, therefore, digitalis seemed to be indicated, but in which digitalis evidently adds to the cardiac distress, and in which so far from its doing good it added so much of harm that I was of necessity forced soon to avoid giving it. It was long before I thought out the explanation of these cases, but, like Columbus's egg, when once the problem is solved it is quite simple. In all these cases I noticed that there was a very large insufficiency of the mitral valve ; and I have no doubt that under these circumstances there was also a great weakness of the left auricle. Now, if there be an excessive weakness of the auricle, and digitalis enormously strengthening the power of the ventricular contraction drives the blood with great force upon the auricle, though there may be gain so far as the ventricle is concerned, there may be such stretching of the weakened auricle that the strain is too much for it. The cardiac agony which follows in these cases the use of digitalis is the measure or the output of a weakened auricle which cannot resist the backward pressure from the increased ventricular power. After I had worked the problem out to my own satisfaction, my reasoning was abundantly confirmed by the curious experiments of Kaufmann, who found that digitalis has much more power over the ventricle than the auricle, increasing the intra-ventricular pressure during contraction much more than the intra-auricular pressure. A weakened auricle with a widely opened mitral valve is in verity a very important contra-indication to the use of digitalis. I wish, next, very briefly to call attention to the employment of digitalis in acute disease. In my belief whenever we have syncope, failure of heart's action from any cause, digitalis, though not the most rapidly acting is the most reliable of all drugs that we have ; and though we employ ammonia and alcohol under these circumstances, and employ them very properly for their momentary effect, digitalis should be always used and used freely. We may give it under these circumstances, hypodermically ; there is no use in giving it by the mouth. We use it hypodermically, and may use it without fear. At least, I have given it so that the whole skin seemed full of it ; and I have never seen any bad effects from it, except perhaps some ulceration. Digitalis is a useful drug in all cases of the heart's failure in acute disease. Unfortunately, for reasons that we do not fully understand, it does not serve our purpose in certain cases in which we most need it. It fails us usually in cases of fever, and that has been shown by the researches of Lauder Brunton to be due to the high temperature which overcomes the action of digitalis in some way we do not understand. (Prof. H. C. Wood, Boston Medical and Surgical Journal, May 18, 1893, p. 484.)

GONORRHŒAL MYOCARDITIS.

At the Association of American Physicians, June, 1893, Dr. W. T. Councilman, of Boston, read a paper on "Gonorrhœal Myocarditis." He referred to the demonstration of the pathogenic properties of the gonococcus. The secondary results of gonorrhœa, especially so-called gonorrhœal rheumatism, were described. A few cases have been reported in which gonococci were found in the joints and fluids. Dr. Councilman reported the case of a man who was admitted to Boston Hospital, and in which the left knee began to swell ten days after the discharge from the urethra started. Subsequently pain in the chest was complained of, and, not many days afterward, the man died suddenly. The temperature throughout did not exceed 99°. After death the opposed surfaces of pericardium presented dense, membranous masses. The myocarditis was almost confined to the left ventricle. Gonococci were found in the urethra and in the joints. In hardened specimens gonococci were found in the epithelium, particularly in pus-cells on its surface. The myocardium, near the endocardium, presented evidence of degeneration, and in the left auricle, particularly, gonococci were found in immense numbers—none was found outside of pus-cells. The secondary lesions of gonorrhœa are regarded as due to metastasis of the gonococcus, and not to a mixed infection. (Medical News, June 10, 1893, p. 629.)

PERICARDITIS.

There are one or two special points in the symptoms and physical signs of pericarditis to which I wish to draw attention. The first is this—that a double pericardial rub may at first be so soft in character as to simulate the blowing murmurs of valvular disease, and as it may be audible only over the base of the heart it may imitate almost exactly a double aortic murmur. Thus pericarditis may be mistaken for commencing disease of the aortic valves. This mistake is a very serious one, for of the two lesions pericarditis is much the more serious, both for its immediate and its later results, and it is also the lesion which is the more open to treatment. Especially in children should the possibility of this mistake be kept in mind, and it should be remembered that whilst mitral disease is very common in children aortic regurgitation is rare, so that a fresh double murmur at the base of the heart occurring during an attack of rheumatism in a child is much more likely to be due to commencing pericarditis. It is hardly necessary, perhaps, to refer to the triple rhythm without definite rub, which may sometimes be the first sign of the onset of pericarditis, but I should like to draw special attention to the fact that pericarditis may sometimes exist and run its course, apparently from the very

beginning to the end, without any rub at all. I have seen two or three instances of this. They have all been cases belonging to the second of the above groups, in which the pericarditis has accompanied pleurisy or pneumonia. In such instances the pleural condition is usually diagnosed, whilst the similar condition of the pericardium escapes observation. Perhaps even in such cases, if the possibility of pericarditis without rub were kept in mind, the diagnosis might be made correctly by a very careful delimitation of the cardiac dulness. Without this it is very easy to make a mistake, and I have even known pericarditis to be altogether mistaken for a left-sided pleurisy which did not exist at all. (Dr. D. B. Lees, The Lancet, July 22, 1893, p. 188.)

TACHYCARDIA.—The Attack.

The tachycardiac attack is always sudden in its onset and usually unexpected. Prodromal symptoms are rarely present, and if any are observed they are vague and unreliable, and are not the same in the different attacks. The first symptom is the sudden increase in the pulse from normal to 180, to 240, or, if the count can be relied upon, even to 300. There is never any irregularity of rhythm as there is in cases of excessive palpitation. There is no intermittence, but the beats are all of the same intensity, so that, as in the fœtal heart, you can not distinguish systole from diastole ; at the same time the single beats are clear, distinct, and very short. The heart beats in a strong and energetic manner, so that it is easily felt. There may be no other symptom present, so that the patient keeps up and is around during the attack. Usually other symptoms oblige the patient to lie down. During or between frequently recurring attacks the apex may be displaced, cardiac dulness increased, and a systolic murmur heard at the apex. These signs are always transitory and are not of any organic import. In direct contrast to the rapid and strong heart's action is the extreme diminution of arterial tension. As shown by Debove and Boulay, this symptom is quite as important as the rapidity of the heart's action ; the pulse may become almost imperceptible, even in the femoral, while the heart beats clearly and distinctly. In all the attacks which I have witnessed this distinction has been marked at some period of the attack ; it is not necessarily present throughout the entire attack, and the tension may change under the finger of the examiner. These authors believe this symptom to be of distinctive value in the diagnosis between symptomatic and essential tachycardia. The cessation of the attack is as sudden as its onset ; it may be preceded by one or more forcible and slower beats and is accompanied by a disagreeable sensation, which is variously

described by the patient. (Dr. G. W. Jacoby, New York Medical Journal, April 8, 1893, p. 375.)

THORACIC ANEURISM.—Venesection in.

At the Hunterian Society, on March 22, 1893, Dr. G. Newton Pitt read notes of nine cases of thoracic aneurism with or without aortic incompetence, in which venesection, more or less frequently repeated, had been followed by more or less permanent relief to symptoms. In one case the patient was profoundly comatose and on three occasions was restored to consciousness by venesection. He would advise venesection only as a remedy for acute symptoms, such as pain, cough, and dyspnœa, and not with a view to promote consolidation of the aneurism by clot. He would treat thoracic aneurismal cases by rest, recumbent position, iodide of potassium in gradually increasing doses, and with as limited an amount of fluid as was comfortable to the patient. (British Medical Journal, April 8, 1893, p. 744.)

THROMBOSIS OF VEINS.—Treatment.

On the first indication of the supervention of thrombosis, absolute rest of the affected member should be strictly enjoined and, as far as possible, maintained. In moving and raising the patient in bed, when necessary, care should be taken to manipulate as little as possible the situation of the obstructed veins. These precautions are to be observed with the view of diminishing, as much as possible, the risk of detachment of fragments of clot. Gentle constant support, in the form of a bandage over cotton-wool from the toes upward, will give relief and aid in checking the œdema, and at the same time will help to keep the limb warm. Where there is much pain over a vein, nothing is so good as painting the skin with glycerine and belladonna, and applying over this hot flannel fomentations; as a rule, this gives almost immediate relief, and opiates are seldom required. It will probably be found advisable in all cases, whether there be pain or not, to apply heat in the form of fomentations, which should not be too thick or heavy, as by this means the superficial vessels are dilated and collateral circulation assisted. (Dr. Dodwell, American Journal of the Medical Sciences, June, 1893, p. 653.)

TRICUSPID STENOSIS.—Diagnosis of.

The important points in the diagnosis of tricuspid stenosis might therefore be summarised as follows: (1) Dropsy, well marked in all cases, and usually extreme. (2) Extension of the area of cardiac dulness to the right of the sternum, associated with epigastric pulsation and a forcible right heart impulse.

(3) A presystolic or diastolic murmur audible over the tricuspid area. (4) A short, sharp, and loud right heart first sound, not obscured by the systolic murmur if it is present. (5) Fulness of the jugular veins not accompanied as a rule by pulsation. General venous distension, associated with cyanosis or lividity of the face and extremities. (Dr. Colbeck, Medical Chronicle, May, 1893, p. 307.)

[See also article "On the Diagnosis of Tricuspid Stenosis," by Dr. E. H. Colbeck, at p. 194 of this volume of the *Retrospect.*]

AFFECTIONS OF THE RESPIRATORY SYSTEM.

CANCER OF LARYNX.—Results of Operation for. Cancer of the larynx presents a more hopeless condition. In all countries surgeons report successful cases after partial or complete laryngectomy. Gussenbauer's case, where the patient, even at seven and one-half years after operation, was not only well, but able, with the aid of an artificial larynx, to speak quite distinctly, is a well-known example of the successful issue. Yet, in estimating the probability of success of extirpation of the larynx, the occasional successful case is cheering, but not determining. Wasserman has gone into the literature of the subject most extensively. He reviewed the history of every case published up to 1890, and was not satisfied until he had in each instance studied the original publication. Following the plan of Scheier, he classified them under six heads. The first were cases who died within fourteen days of operation ; second, those dying within six weeks ; third, those in which there was recurrence ; fourth, cases in whom death was caused by some intercurrent affection ; fifth, those discharged after too brief a period of observation ; and finally, those who were definitely cured. He furthermore sub-divided them into two groups, those operated upon before 1881, and those since, for it was at this time that the subject was thoroughly discussed at the meeting of the International Medical Congress in London. Prior to this year the mortality of the operation of total extirpation of the larynx was 53 per cent., but with the newer technique established then, it was reduced in the subsequent operations to 23 per cent. Thirty-six per cent. of those recovering from the operation suffered recurrence. Out of 121 cases of total extirpation, only 8 outlived the three-year period of probation, thus yielding as the ratio of cures a percentage of 6·6. With partial operation, for some inexplicable reason, the mortality was even greater, being in the neighbourhood of 28 per cent. This includes only the list

of cases operated upon since 1881. Of the 45 cases in this group the permanent recoveries were likewise 6·6 per cent. Not one of 10 cases from whom the larynx was partially removed, prior to 1881, was permanently cured. It appears, then, without entering upon a study of the limitation of cancerous disease in the larynx to determine the ratio of intrinsic and extrinsic cases, that laryngectomy, either total or partial, presents anything but an encouraging record. I am almost inclined to say, with Tauber, that the surgeon has three times as good an opportunity to kill the patient as has the disease. (Prof. Nathan Jacobson, Annals of Surgery, April, 1893, p. 407.)

DIPHTHERIA.—Results of Tracheotomy and Intubation in.

In an exhaustive paper, in which the indications for and comparative results of these methods are minutely studied, comprising 690 cases of diphtheria occurring between 1874 and 1891, in the Children's Hospital, in Zürich, Baer (*Deut. Zeitsch. für Chir.*, Dec., 1892, Band xxxv., Hefte 3 u. 4) concludes that the better average results obtained by the method of intubation are not due to the earlier operation, but, *cæteris paribus*, are found in the operation itself, and especially in the youngest patients. There is apparently no distinction to be made in sex, either as regards prognosis or the course of the disease after operation. The mortality in the 690 cases was 43·8 per cent. Or, according to the tracheotomy and intubation periods, 45·3 per cent. and 39 per cent. respectively. Since, in the latter period, there was a greater number of operations in the pharyngo-laryngeal cases, in which the mortality is always very high, the actual mortality during the intubation period was 8 per cent. better than during tracheotomy. The author does not, however, believe that the intubation operation is a rival of tracheotomy, but rather a means to be used before and in conjunction with it, tracheotomy being reserved for cases in which intubation fails. He gives the following as his indications and contra-indications for performing intubation. These are not as many as have formerly been insisted upon, and he believes that the spread of the diphtheric process into the trachea is not a contra-indication, as is shown by many cases reported. Feeble children should have intubation, since the wound complications make their chances much less. Cases which are brought *sub finem vitæ* need intubation with short tubes, or tracheotomy. When superior tracheotomy cannot be performed, intubation, on account of its shorter duration, is indicated. Indications for a secondary tracheotomy following after intubation are :— (1) Where masses of membrane or free portions prevent

laryngeal respiration, even after aspiration. This is, however, seldom observed. (2) When laryngeal and tracheal stenosis persist after intubation has been performed. (3) Where it is impossible to insert the tube on account of its being coughed up, and where there is threatened asphyxia. The indications for a primary tracheotomy and contra-indications of intubation are:—(1) Complete closure of the naso-pharyngeal space through swelling and membranous deposit on the mucous membrane of the pharynx and tonsils. (2) Intense œdema of the glottis. (3) A retro-pharyngeal abscess as a complication. (4) In cases where the short tube cannot be used. He also recommends intubation in all forms of chronic stenosis, and reports two new cases. (American Journal of the Medical Sciences, June, 1893, p. 701.)

EMPYEMA AND PNEUMONIA.

The causal relation of pneumonia to empyema, one of the closest if not the most constant, the latest text-books notwithstanding, is another exemplification of the subject. True, there are cases of pus in the pleural cavity that have not arisen out of an attack of pleuro-pneumonia, due possibly to an acute septic pleurisy, or to tuberculous pneumothorax, or as the result of a simple effusion becoming contaminated by septic matter, say, by means of a trocar, but these are exceptions. Exclude them and it may fairly be concluded that empyema, the common disease with which practitioners are so familiar, may be ascribed to an antecedent pneumonia. It is of the greatest moment to recognise an empyema as early as possible, for the sooner the pus is evacuated the shorter will be the surgical treatment of the case and the better the prospect of permanent recovery; and further, if taken very early, a single tapping without incision and drainage may effect a cure. Now the diagnosis of these cases turns largely upon the discovery of the pneumonic factor; in other words, familiarity with the fact that effusion following pneumonia is very apt to be purulent furnishes a clue to diagnosis. (Dr. Drummond, The Lancet, August 5, 1893, p. 293.)

EMPYEMA FOLLOWING ACUTE PNEUMONIA.

At the American Medical Association (June, 1893), Dr. Robert H. Babcock, of Chicago, presented a paper upon "The Medical Aspects of Empyema Following or Complicating Croupous Pneumonia." He believes that owing to its insidious onset, purulent pleurisy is frequently overlooked. He would especially call attention, as supporting this belief, to the vague and general manner in which the disease is treated by most of the text-books. It is only within a recent period that the progress in bacteriologic research has given the profession a more positive

knowledge of this interesting and important condition. In every instance empyema is dependent upon the presence of cocci acting when there has been a previous injury of the serous membrane, or a pre-existing serous effusion. The micro-organisms may be of various kinds, as, for instance, the pneumonia-coccus or the bacillus tuberculosis. Frequently, the disease is secondary to some pre-existing affecton, especially croupous pneumonia and influenza. If due to the presence of the pneumonia-coccus there is a great tendency to spontaneous evacuation through the bronchi. Four types of empyema may be recognised :—(1) Meta-pneumonic empyema, either independent of or in association with croupous pneumonia ; (2) a pyemic form, secondary to some local inflammation or constitutional infection ; (3) a tuberculous, and (4) a gangrenous form. The existence of empyema may be definitely diagnosticated by the use of the aspirating needle. The prognosis in the form due to the pneumonia-coccus is good, cases usually yielding to simple puncture and drainage. That of the other forms is more grave. These require more active surgical intervention. (Medical News, June 10, 1893, p. 649.)

LARYNGECTOMY.

Lanz, in the *Archiv für klinische Chirurgie*, 1892, Band xliv., Heft 1, after a review of the subject, reports in detail 12 operations performed in Kocher's clinic in Berne. The conditions calling for operation were as follows ;—Lupus 1 case; carcinoma, 5 cases ; epithelioma, 4 cases ; tuberculosis, 1 case ; sarcoma, involving the larynx secondarily, 1 case. As a rule, a preliminary tracheotomy was performed. The most common neoplasm demanding extirpation of the larynx is carcinoma. The disease is much more common in men than in women. In the Breslau clinic, of 9 cases but 2 were in women. Of 176 cases of carcinoma of the larynx collected by Wassermann, but 29 affected the female sex. The question of effecting a radical cure by this operation depends upon the stage which the disease has reached. That the final results of laryngectomy are not more satisfactory is due to the fact that the patient does not consult the surgeon until the disease is in an advanced stage. As a rule, valuable time has been lost in using gargles, and in submitting to various local applications. Usually by the time malignant disease is diagnosticated the process is far advanced. Primary carcinoma of the larynx, as is shown by the cases reported, does not tend to give metastasis, but to remain localised and to spread by contiguity. The more distant lymph glands are not affected. A malignant tumour of this region cannot be extirpated too early, even at the expense of the sacrifice entailed by loss of the voice and difficulty in swallowing.

Semon states that tumours of the larynx have always been found to be larger after laryngectomy than had been expected from the laryngoscopic picture. Endo-laryngeal excision is impossible, and the removal of the growth by such measures as the snare and by twisting off by means of forceps is condemned. The physician, the author remarks, who does not use the knife immediately in carcinoma of the breast, or does not send the patient to a surgeon, is guilty of manslaughter, and the same remark will no doubt soon apply to cases of carcinoma of the larynx unless some specific for this affection is discovered. The operation is not a dangerous one. Of the 12 cases tabulated, all recovered but 1. This patient died on the fifth day from interference with respiration by tenacious mucus which collected in the bronchial tubes. (American Journal of the Medical Sciences, April, 1893, p. 465.)

OZŒNA.—Treatment.

Kuttner (*Therap. Monatsh.*, March, 1893), after recapitulating the various treatments suggested for this malady, based as they are on different views as to the etiology of the disease, states that all have hitherto failed in curing the typical affection, perfect cleanliness being the only measure which will, with our present knowledge, give satisfactory results. Tampons have been used by the author, and in this connection he discovered that if changed frequently enough no smell arises ; also that those possessing the typical odour lose it when kept in a low temperature during twenty-four hours, this pointing to the circumstance that the factors in producing the fœtor are present in the nose. In order to secure an efficient cleansing, which should be accompanied by any other suitable form of treatment, the author has devised an apparatus consisting of a spirit lamp and kettle, the steam from the latter escaping into an open glass cylinder attached to the patient, and surrounding the orifices of the nose, which simultaneously are made more patent by a special wire speculum ; the air entering the open end of the cylinder cools the steam, which the patient is directed to inhale deeply for periods of from five to seven minutes, two or three times daily, this sufficing to remove all moist and dry secretions. Eventually tubes dipping into medicated solutions were connected at a right angle with the steampipe, medicated sprays being thus formed, and both practically and experimentally bicarbonite of soda was found to be most efficacious in dissolving the hard, dried up excretions formed. In a large number of patients experimented on, the nose and throat were thus kept perfectly clean and odourless, without producing any unpleasant results. (Epitome of the British Medical Journal, July 15, 1893, p. 11.)

PLEURISY.—Etiology of.

Jakowski (M.).—*Zeitschrift für klinische Medicin*, Band xxii., Heft 1 and 2.—This is an account of bacteriological examination of the fluid obtained by exploratory puncture in 52 cases of pleurisy with effusion. From these cases, and from the results of similar investigations by Netter, Fränkel (A.), Levy, Ehrlich and Renvers (300 cases in all), the author draws the following inferences, viz. :—(1) Every inflammation of the pleura is of bacterial origin, although sometimes the presence of bacteria in the exudation fails to be demonstrated. "Catching cold" and other imputed factors exercise only a predisposing influence in providing in the body a soil favourable for the development and activity of bacteria. (2) Serous and purulent exudations in which no bacteria can be demonstrated are to be considered as tuberculous in nature. (3) Septic pleurisies occur where bacteria are wanting in purulent or sanious exudations. The character of the original disease and the nature of the exudation in such cases determine the diagnosis. The absence of bacteria may be due to their death after the disease has become established, or, what is just as probable, the exudation may be induced by the action of certain chemical bacteria products. (4) Most of the primary idiopathic non-tuberculous inflammations of the pleura, the so-called rheumatic pleurisies, are due to the action of Fränkel's bacteria. Next in importance to these bacteria are various pyogenic cocci, particularly streptococcus pyogenes. (5) Serous exudations in primary pleurisies in which we discover pyogenic bacteria possess a greater tendency to suppuration than those containing Fränkel's diplococci, and the prognosis in such cases must be very cautious. (6) Pleurisies with or after pneumonia owe their origin mainly to Fränkel's bacteria. The favourable course of such pleurisies is related to the vital qualities of the Fränkel bacteria, which usually very soon lose their pathogenic power. (7) Purulent exudations occurring in typhoid, tuberculosis, &c., and containing pyogenic bacteria besides the primary bacteria (tubercle, typho-bacilli), must be regarded as the result of mixed infection. (8) Pleurisies due to Fränkel's bacteria have a much less severe course than those dependent on pyogenic bacteria, or due to the presence of both kinds. This fact is of importance in treatment, as well as in prognosis, for in those cases where the presence of pyogenic bacteria is established, more particularly the presence of streptococcus pyogenes, the early complete removal of the exudation is more imperative. Radical treatment by pleurotomy and resection of the ribs is here also much more frequently required.

(Dr. Robertson's Abstract, in the Medical Chronicle, June, 1893, p. 189.)

PNEUMONIA COMPLICATED BY PURPURA HEMORRHAGICA.

Jaworski (*Wiener med. Presse*, xxiv. 3, p. 84) has reported the case of a man, twenty-seven years old, who, while engaged in making an excavation, was seized with a severe chill, soon followed by profuse bleeding from the nose and mouth and loss of consciousness. On the following day the hemorrhage was repeated several times, and, in addition, pain in the right side of the chest and general weakness and depression manifested themselves. On examination, the evidences of croupous inflammation of the middle lobe of the right lung were detected. The skin was rather pale and somewhat moist. Upon the lower part of the body, from the umbilicus downward, were numerous subcutaneous hemorrhages, varying in size from a pinhead to a lentil. There were also hemorrhages beneath the conjuctiva, into the sclera and beneath the mucous membrane of the inferior surface of the tongue and lower lip. Neither the gums nor the palate nor the larynx presented any changes or lesions. The tongue was dry and covered with a coating with which coagulated blood was mixed. Blood constantly trickled from the nose. The temperature was elevated ; the pulse full, tense, regular, accelerated ; the respiration accelerated. There was considerable frothy, blood-stained expectoration. The urine was blood-stained and contained red corpuscles. The patient grew progressively worse, and died in the course of five days amid the signs of exhaustion. The history and the symptoms excluded phosphorus-poisoning, arsenical poisoning, scorbutus, and typhus fever. Bacteriological investigation was not made. The post-mortem examination confirmed the diagnosis of cropous pneumonia complicated by purpura hemorrhagica. (American Journal of the Medical Sciences, April, 1893, p. 463.)

PNEUMONIA, CROUPOUS, IN CHILDREN.

At the Medical Society, on March 27, 1893, Dr. Francis Hawkins read a paper based on 220 cases, and the conclusions at which he arrived were fully illustrated by diagrams. He showed that most cases occurred during March, May, and July ; the fewest in January, August, and December. They occurred, as a rule, independently of antecedent disease, and in a great majority the onset could not be attributed to any definite cause. Fifty of the cases occurred under the age of 5 years, 120 between 5 and 10, and 50 between 10 and 14. The disease was most frequent at the ages of 5 and 9 respectively. Connecting his table with a further series of over 700 cases compiled by Drs. Hadden, Mackenzie, and Ord, he found that the frequency of the affection gradually rose from the fifth to the twentieth year. Its onset was usually sudden, and the chief symptoms of invasion were

vomiting, cough, and pain, while rigors and convulsions were very infrequent, and hæmoptysis extremely rare. An arrangement of symptoms into groups showed that the nervous system was the one most variously affected. The average daily temperature before crisis was 103° to 104° F., and in about one-seventh of the cases the fever was of a hectic type, though in only three was such associated with pus in the pleural cavity. The sixth was the commonest day of crisis, it being very frequent also on the seventh and eighth days. In basic pneumonia it was rather later than in apical. A dull tympanitic note was often present before any differentiation was detected in the character of the breath sounds. In 146 cases the base of the lung was attacked in 69, the apex in 45 ; in the remainder the seat of the disease was in other parts. The most rapid respiration noticed was 68. Typical rusty expectoration was present in 7 cases, the youngest being 6. Pleurisy co-existed in 16 cases, pus being formed in three. Gangrene of the lung occurred once. A soft systolic murmur was detected as arising during the course of the disease in 6 cases. Pericarditis was noted in one case, the patient having had rheumatic fever previously. Albuminuria was discovered during the disease in 7 cases, and herpes in 36, being in one case on the wrist as well as at the angle of the mouth. Delirium was more frequent during the course of the disease than at the onset, and more in apical than in basic cases. In the treatment ice should be used with great caution when the pneumonia was on the left side, as the heart might become slowed and dangerous symptoms arise. With regard to alcohol, discretion was required to select those cases in which it was needed. (British Medical Journal, April 1, 1893, p. 698.)

PNEUMONIA.—The Icebag in.

At a discussion on the diagnosis and treatment of acute pneumonia in the section of Diseases of Children, at the annual meeting of the British Medical Association, 1892, Dr. D. B. Lees confined his remarks to the question of the local treatment of pneumonia by the icebag. He claimed for this form of treatment (1) that it reduced temperature ; (2) that it diminished physical signs ; (3) that it relieved pain ; (4) that it was pleasant to the patient ; (5) that, when used with reasonable caution, it was perfectly safe. He thought that now it was beginning to be generally allowed that the external application of ice was the best and most effectual form of antipyretic, and much safer than any of the antipyretic drugs. But he claimed that this was far from being its sole effect, and he had often seen marked diminution of the physical signs under its influence, but seldom had there been great local improvement twenty-four hours, or even more, before the occurrence of the

crisis. The effect in relieving pain was often very striking, and the presence of the icebag was usually pleasant to the patient. With regard to the question of safety, he pointed out that it was simply a question of efficient nursing, and that, if the nurse were reliable and the temperature taken hourly, the icebag being removed when it fell to 100° and replaced when it rose again to 102°, no symptom of collapse would be produced. He exhibited temperature charts of six cases treated with ice, and gave the details in each case as evidence in favour of these claims. He laid special stress on the last case, that of a boy, whose right lung was completely collapsed by an old empyema, and who developed pneumonia in the left lung. Such a case would, he thought, have been absolutely hopeless under any other treatment, but, after early and persistent treatment with ice, the child recovered. Dr. Lees concluded by giving a few practical hints with regard to the employment of the icebag. In addition to the precautions above noted with regard to children, he laid stress on the utility of applying warm fomentations to the lower limbs and a hot bottle to the feet; also on the value of vasodilator remedies, such as alcohol in hot water, with or without a little nitro-glycerine. Lastly, he stated that failure of the icebag treatment was sometimes due to a too limited use of it, and that frequently two or even three icebags were necessary. (British Medical Journal, April 15, 1893, p. 784.)

PULMONARY DYSPNŒA.—Nitrites in.

I cannot say that my experience of the use of nitrites in asthma and bronchitis has been as favourable as that recorded by Professor Fraser; nevertheless, I have seen a large measure of relief afforded in pulmonary dyspnœa by them. In typical asthma I have often seen complete and rapid relief afforded, yet in some cases hardly the slightest benefit arises either from inhalation of amyl nitrite or from the administration of large doses of the other nitrites. In the less severe asthmatic attacks, which are apt to come on from time to time in nervous people subject to slight bronchitis, the attack is almost always cut short by nitrites; and where marked bronchitic symptoms are permanently present and asthmatic exacerbations also occur, the nitrites give relief to the urgent dyspnœa in a large proportion of the cases, yet by no means in all. The disappearance of the rhonchi in bronchitis under the influence of the nitrites I have often seen, but it does not in my experience occur so frequently as in the cases observed by Professor Fraser. Where abundant moist sounds are present owing to a large amount of secretion in the bronchial tubes, the nitrites generally are of little service; but in dyspnœa with bronchitis, indicated by abundant sibilant

and sonorous rhonchi, and also in asthmatic paroxysms, amelioration is at least the rule. At times paroxysmal dyspnœa is cut short by a single dose of one of the nitrites and may not recur for hours. In bronchitic dyspnœa the duration of the relief varies, but usually lasts as long as the influence on the circulation. From this Professor Fraser thinks that the nitrites produce their effect by relaxing the muscles of the bronchial tubes in the same manner as they relax the contraction of the blood-vessels, and that this effect is the essential cause of the relief nitrites give in dyspnœa. From the marked effect of nitrites in some cases of asthma and bronchitis, and from the evidence we have of the influence which nitrites exert on involuntary muscle fibre, it certainly seems to be probable that they are capable of increasing the lumen of bronchial tubes when narrowed by the contraction of the muscular fibre which surrounds them; but it by no means follows that such contraction is the sole cause of asthmatic paroxysms or of the exacerbations of dyspnœa in bronchitis. There is a want of uniformity in the action of nitrites which I should hardly expect if paroxysmal dyspnœa depended entirely upon the contraction of the bronchial muscles alone; moreover, dyspnœic attacks are at times relieved by nitrites without any marked alteration in the auscultatory signs. It seems to me to be likely that some alteration takes place in the bronchial mucous membrane more or less coincident with spasmodic contraction of the bronchial muscles. As a rule nitrites are well borne by dyspnœic patients and large doses may be safely given if experience shows that they are needed. I have administered one drachm of a 2½ per cent. of ethyl nitrite solution every ten minutes until three or four drachms have been taken. Sodium nitrite is at times borne better in pulmonary dyspnœa than ethyl nitrite and sometimes the reverse is the case. The spiritus etheris nitrosi of the Pharmacopœia would be equally serviceable if it always contained a definite amount of the ethereal nitrite, but the rapid deterioration in the strength of this ingredient, which at times takes place, renders it uncertain in its influence. Perhaps the best preparation would be liquor trinitrini combined with a small quantity of rectified spirit. Headache, however, seems to me to be more common after trinitrine than after nitrites. Of late I have used ethyl nitrate in doses of from five to ten minims and find that it is quite as efficacious as ethyl nitrite and that its influence lasts longer. Amyl nitrite acts for too short a time to be of service. The nitrites must not be regarded as curative agents in bronchitis. They are often capable of relieving dyspnœa, and by dilating the vessels of the lung they may possibly temporarily relieve the right heart; but in the ordinary forms of bronchitis their

regular administration does not, as a rule, prove to be very advantageous. It is for the relief of dyspnœic conditions that they should be reserved, and even then they often fail when abundant moist sounds indicate that the difficulty of breathing is connected with accumulation of bronchial mucus rather than with spasm of the tubes or vessels. By some the nitrites have been used in pneumonia, lung œdema and many other lung ailments. It is quite possible that they may give relief at times, but I question whether they can be looked upon as being curative. (Dr. D. T. Leech, Croonian Lectures, The Lancet, July 15, 1893, p. 126.)

SCALDS OF THE THROAT AND LARYNX.

Scalds of the throat and larynx are of common occurrence amongst the young children of the poorer classes. In a table of 78 cases admitted to St. Thomas's Hospital from 1872 to 1893, the average age is a fraction over 3 years. In nearly all there was some difficulty in respiration. The cause of the accident in 67 cases was inhaling steam or attempting to drink boiling water from the spout of a kettle. In 4 the cause is noted drinking from a teapot spout. In 3 the cause is not stated. Drinking hot cocoa, 1 case. Hot potato in mouth, 1 case. Hot tallow, 1 ; and pepper forced into the throat, 1 case. The latter would more strictly come under the heading of irritant. There were 15 deaths, and in 12 of these tracheotomy was performed. Included in this fatal list are 3 cases where intubation was first tried, and later tracheotomy performed. Of the 78 cases, 23 came to tracheotomy or intubation. Some of the cases were admitted more by way of precaution, but the majority were severely scalded and required careful watching. Eight cases recovered after tracheotomy, and 3 after intubation. Details of these cases were given. Neither tracheotomy or intubation was performed unless the difficulty in respiration was serious and likely to prove fatal. Many of the cases which recovered without operation had noisy and laboured respiration, with some retraction of the lower ribs. Most were treated with steam spray and tent bed, but a few had ice applied to the throat, and did equally well. The average age of the cases fatal after tracheotomy was 2 years and 9 months. The average age of the successful cases after tracheotomy was 3 years ; so that age had little to do with the result. Amongst the fatal tracheotomy cases are included 3 in which intubation was first done and failed to relieve. Only 1 case treated by intubation and tracheotomy recovered. The 3 cases treated successfully by intubation were aged respectively 1 year and 7 months, 2 years and 8 months, and 3 years and 3 months. Scarification of the fauces and glottis, does not appear from the notes to have been

much tried, and no doubt it is not at all easy to practise scarification in the inflamed and tender throats of young children without an anæsthetic. Intubation will probably take the place of tracheotomy in certain cases of œdema from scald, when the scald is confined chiefly to the glottis, and the surgeon is practised in the art of passing intubation tubes and can do the operation quickly and without using force. The swelling of the parts must make the manipulation somewhat difficult, and tracheotomy must be done immediately if relief is not afforded. The rapidity with which an intubation tube can by a practised hand be introduced—without chloroform and, in emergency, without the consent of the friends—makes it absolutely necessary for every surgeon to become familiar with the manipulations. In 4 of the cases of scald treated at St. Thomas's membrane was seen on the fauces; well-formed membrane is occasionally seen in traumatic cases. Dr. Fagge, in the *Guy's Hospital Reports* for 1877, recorded 16 cases of membranous inflammation of the air-passages due to traumatic causes, namely, scalds, foreign bodies, and cut throat. One of the chief difficulties in the diagnosis of the medical and surgical affections of children is that history has to be obtained from the friends, and is often unreliable. On one occasion a mother brought her child to St. Thomas's Hospital with all the signs of a diphtheritic throat, yet she stated positively that the child had scalded itself by drinking from a kettle. She confessed afterwards that she had invented the story to get the child admitted, since she was under the mistaken impression that diphtheria cases were not eligible for admission. The prognosis, even in severe cases of scald of larynx, is not so gloomy as many writers have stated. Tracheotomy or intubation to be successful must be done before the child is exhausted and the blood has become imperfectly aerated. Looking through the cases which recovered without tracheotomy at St. Thomas's, the most striking feature is the improvement shown soon after admission. When the breathing is obstructed, unless such improvement quickly results from general treatment, intubation or tracheotomy ought to be done. Burns affecting the larynx are much more rare than scalds. (Mr. Bernard Pitts, British Medical Journal, July 15, 1893, p. 105.)

TUBERCULOUS PLEURISY.—Its Incidence in the Post-mortem Room.

A trustworthy estimate of the incidence of tuberculous pleurisy can be had only by anatomical investigation. Uncertainty is inherent to clinical records of an affection such as pleurisy, the diverse etiological factors of which cannot be always discriminated at the bedside, even with the help of bacteriology.

Accordingly, with the kind assistance of Dr. Rupert Norton, and with the consent of my colleague, Professor Welch, I have carefully analysed the post-mortem records of the 101 successive cases from my wards in which pleurisy—fibrinous, sero-fibrinous, hemorrhagic, or purulent—was found; and the record is of interest as showing the incidence of tuberculous pleurisy in a medical service varying from 70 to 90 beds. There were 32 cases out of 101 in which the pleurisy was definitely tuberculous. I have estimated as such only those in which tubercles were present on the pleural layers, either as fresh miliary granulations, caseous masses, or diffuse fibro-tuberculous membranes. Of these cases there were 8 with purulent exudate, all associated with pneumothorax, and 2 with hemorrhagic fluid. Seven were cases of acute miliary tuberculosis, with fibrinous and sero-fibrinous exudate; 4 were instances of acute miliary tuberculosis, with a purely fibrinous effusion; and 13 were cases of chronic sero-fibrinous exudate, with more or less thickening of the pleural layers. In 4 instances the sero-fibrinous exudate was encapsulated. There were 13 cases of pulmonary tuberculosis in which pleurisy was present without our being able to say definitely that it was of a tuberculous nature. In 10 of these cases the exudate was fibrinous, and 3 sero-fibrinous. It will thus be seen that the incidence of tuberculous pleurisy among these 101 cases was a little less than 32 per cent. By far the most common forms of pleurisy are the sero-fibrinous and fibrinous, secondary to acute disease of the lungs, or occurring as a terminal process in chronic affections of the heart, arteries, or kidneys. (Prof. Osler's Shattuck Lecture, Boston Medical and Surgical Journal, July 20, 1893, p. 53.)

TYPHOID EMPYEMA.

Weintraud (*Berl. klin. Woch.*, April 10, 1893) records a case of empyema beginning in the second week of an attack of typhoid fever of moderate severity. The patient was a young man, aged 19, and he made a good recovery without operation, although, at the beginning of the fifth week, he was seized with symptoms which pointed to peritonitis. At the end of the fourth week an exploratory puncture was made, and a syringeful of yellow, viscid, slimy pus was drawn off. Microscopical examination and cultivation experiments showed that this pus contained only a small bacillus, which was recognised as the typhoid bacillus. Seventeen days later, and after the patient had recovered from the symptoms of peritonitis, a second exploratory puncture was made, and similar yellow pus drawn off; it was again found to contain the typhoid bacillus in pure culture. The virulence of the bacilli was tested on both occasions on mice, and the interesting fact appeared that those

withdrawn by the earlier puncture were far more virulent than those obtained on the second occasion, two weeks and a half later. Weintraud points out that the case affords fresh proof of the fact that the typhoid bacillus is a pyogenic organism, and of the truth of the view expressed recently by Valentini and by Lorigo and Pensuti that the bacillus may be the direct cause of the production of empyema as a complication of typhoid fever. He considers that the fact has a considerable importance in its bearing on the prognosis and treatment of the complication. (Epitome of the British Medical Journal, April 22, 1893, p. 61.)

AFFECTIONS OF THE DIGESTIVE SYSTEM.

APPENDICITIS AND APPENDICULAR COLIC.—Differential Diagnosis.

Can we make a differential diagnosis between appendicular colic and appendicitis? *Prima facie* one would be inclined to say yes. One would imagine that in the colic there would be no fever during the attacks, and that the pain would be relieved by pressure. That between the attacks pain and tenderness would be entirely absent. But a careful study of the few cases reported shows such an idea to be erroneous. We may have high fever during an attack of colic; we do have very marked tenderness, especially over McBurney's point; we may have extreme collapse and all the signs and symptoms of acute perforative appendicitis. In the intervals between the attacks we may and do have that classic sign of appendicitis, tenderness at the McBurney point, and palpation may give us a sensation of increased resistance or fulness. Altogether it seems to me that with our present knowledge, or want of knowledge, while a diagnosis of probability may be made, a positive differential diagnosis is rarely possible. Of course, these remarks do not apply to some cases of chronic appendicitis which have reached the stage of suppuration, the suppuration being localised by the formation of adhesions all around. Here we may have positive signs of inflammation, even fluctuation and inflammatory œdema of the skin. Where pus is believed to be present it may be demonstrated by the use of the long needle and the Pravaz syringe. This method of exploration is, however, unsatisfactory because, when by its means pus is not found, we are no more sure of its non-existence than if no exploration had been made. A much more satisfactory method of exploration is by incision, which gives positive results, and is at least no more dangerous than the former procedure. Exploratory incisions may be made under cocaine anæsthesia with satisfaction where a general anæsthetic is contra-indicated. Such explorations,

whether made by the needle or the knife, must be carried out with full aseptic precautions. My strong personal belief is that the treatment for appendicitis and appendicular colic ought to be the same, viz., removal of the offending organ. The operation, is accompanied with but trifling danger, while appendicitis is a constant menace to life, and appendicular colic is apt to render life miserable. (Dr. J. F. Binnie, Annals of Surgery, June, 1893, p. 675.)

APPENDICITIS.—Surgical Treatment in.

Looking at the records of cases, it seems that if the symptoms are due to the appendix surgical interference is called for (1) In all cases where the general peritoneal cavity is involved; (2) where there is evidence of local abscess; (3) where in the course of an acute attack symptoms progress in spite of treatment and where there are good grounds to believe that pus is being formed, though it is too deeply situated to give rise to fluctuation. These cases form perhaps the most important group, as by the early opening of a deep-seated and as yet small abscess a general peritonitis may be avoided. It may be asked whether deep-seated pus can be detected by the aspirating needle. No one would deny that at times it may, but on all considerations it is better not to use the aspirating needle; far more useful information is obtained by an exploratory incision. Puncture by a needle here is by no means free from danger, nor is the information it gives at all reliable, unless of course, pus is drawn. (4) In those relapsing cases where the restoration to health is incomplete and the patient is rendered unfit for the duties of life. In these cases there seems to be good reason to believe that the patient's safety is best consulted by an exploration and possible removal of the appendix in an interval between the attacks. (W. F. Haslam, Esq., The Lancet, December 31, 1892, p. 1484.)

CHOLELITHIASIS.—Complications of.

As a result of the incarceration of a stone a number of diseases affecting both the liver and the biliary passages may be produced, which are known by the name of cholangitis, cholecystitis, hepatitis, pericholangitic and pericholecystitic inflammations and neoplasms. Incarcerated stones generally lie within the biliary passages, and less frequently in a recess connected with the biliary passages due to ulceration. As a result the lumen both before and behind the stone is obliterated or narrowed. If one or more stones are incarcerated in this way, and so situated that the bile passes by them, any of the above diseases may be produced. As a general thing the stone is attached to the wall, or, if situated in the recess, is surrounded by a soft mass of cholesterin crystals and epithelium, or pus.

In the gall bladder they are encysted near the fundus, or at the neck. In the former case the gall bladder is generally normal; in the latter it is atrophied, though sometimes ectatic. In the cystic duct, and in the common duct, stones are common, and are present in from 4 to 13 per cent. of the cases. In the common duct they are mostly found at the duodenal end. In the hepatic duct they are seldom found ($\frac{3}{10}$ of 1 per cent. to 1 per cent.). In the intrahepatic passages they are generally found as a soft mass, composed of bilirubin calcium. They are present in about 9 per cent. of the cases. Such a soft mass may be disintegrated when small, and washed out by the force of the bile, or they may be so thick as to occlude the lumen. If they remain here they increase in size by the deposit of calcium and cholesterin from the mucous membrane. The incarceration of the stone is the primary cause of what is known as irregular cholelithiasis, the essence of which consists in the infectious and ulcerative processes in the biliary passages. If no complication of this nature exists, such a calculus may cause a chronic jaundice or remain perfectly harmless and latent. The latter condition occurs most frequently when the calculus is present in the gall bladder or the cystic duct, provided it is not too large, or infection has not taken place. The same holds good for calculi in the small hepatic ducts. In the common and larger hepatic ducts calculi produce jaundice, though in many instances even here they may remain latent and harmless, if they do not completely occlude the duct. When stones exist in the duct, if the gall bladder be distended it can compress the common duct by its weight. Most frequently, however, chronic jaundice is due to a tumour, or a stricture, or an abscess, the result of previous calculi. Chronic jaundice depends in all cases upon an interference in the flow of bile. Most frequently the common duct is found dilated in a cylindrical or fusiform manner. This dilatation may be so great that the sac contains a litre of fluid, and such dilatations have been opened for the gall bladder during operations. In such cases the liver appears as a sponge, and upon the surface of the liver varicose dilatations of the biliary passages may be seen. The gall bladder and cystic duct may be dilated as well, but it is more frequently the case that the gall bladder is atrophied when the common duct is obstructed. Chronic jaundice may also occur without a previous gall-stone colic, and in that case is due to stones in the common duct found near the duodenum. When such a jaundice results in a cure, it is due to the formation of a fistula between the common duct and duodenum. Death frequently results from this condition, and the patients either die of cholemia, in which coma and hemorrhages are the common and diagnostic symptoms, or

they die of a perforative peritonitis. The diagnosis of incarcerated stones as a cause of chronic jaundice is always uncertain. The most important symptoms are derived from the previous history of the patient. The persistent want of bile in the fæces is in favour of a stricture or a new growth. The occasional presence of bile in the fæces is in favour of stone; so, also, as to the intensity of the icterus. In new growths it is very rare for the icterus to partially or completely disappear. The liver is rarely enlarged in gall-stones; it is moderately enlarged in new growths involving the common duct. The dilatation of the gall bladder is the common condition in new growths; atrophy of the gall bladder is common in stones. Hypertrophy of the spleen is rare in carcinoma; it is common in stones. Arsitis is common with new growths; it is rare in stones. Chills and fever occur more frequently where gall-stones are in the common duct than where new growths are present. New growths generally result fatally in one year; such is not the case in stone. (Dr. C. T. Parker, Annals of Surgery, June, 1893, p. 639.)

CHRONIC GASTRITIS.—Resorcin in.

Dr. W. H. Thompson makes a very careful report of the results of the use of this remedy in 78 patients selected from his private practice. Of these cases, the failures numbered 21, the successes were 51, and he was doubtful concerning the remaining 6. On reviewing his failures, they seemed to present one general characteristic in common, namely, that the gastric disturbance was in them consecutive to nervous disorder. In all histories with such a sequence, resorcin did not seem to have any effect one way or the other. Of the doubtful cases, 4 proved to be cases of stomach disorder dependent upon gall-stones. It is probable that so long as hepatic irritation continues, the subacute gastritis will continue, whatever be the treatment. Another case, that of a young married lady, with dyspepsia and causeless mental depression, often reported marked improvement and then the reverse. The last of the doubtful cases was that of a gentleman who finally developed ataxic symptoms. Of the successful cases, 17 presented symptoms of gastric ulceration, the remainder showing only symptoms of gastritis. In cases of severe meagrim the remedy had no effect in relieving the attacks themselves, but it had an undoubted effect, fully appreciated by the patients, of preventing the attacks. The element of intermittency which so fundamentally separates functional nervous disease from organic nervous disease, points strongly to a toxic origin, or to auto-infection, as the main factor in functional neuroses; the observation of the benefit of an antiseptic like resorcin tending

to support this view. Resorcin, which is now chiefly obtained from benzol, is readily soluble in water, alcohol, ether, and oils, but not in chloroform. It is not irritating to the stomach, and is never "tasted" again by eructation. Except when combined with strong tinctures—then, doubtless, from the intolerance of alcohol which goes with gastritis of any form—it does not "repeat" by having its taste returned from the stomach. It should be given in solution, as the powder is locally irritant, in an average dose of five grains one hour after meals. A dose of ten grains often causes dizziness. — *Merck's Bulletin*, 1893, No. 1, p. 8. (American Journal of the Medical Sciences, April, 1893, p. 451.)

DIARRHŒA IN INFANTS.—Treatment.

Often we might prevent the disease by a few minutes of instruction to the mother. She is directed to obtain two small soda-bottles. They are strong, and can be tightly corked. The rest of the apparatus will be found in every household. A saucepan is to be filled with water sufficient to reach to the neck of the bottle. The bottles are to be thoroughly washed, filled with milk, and placed in the saucepan, and laid on the range. A cover excludes the air. In about twenty minutes the bottles are to be tightly corked and laid in a cool place. Mothers readily understand this procedure, and carry it out successfully. The outlay of a few pence for bottles covers the cost of the apparatus. When the child is to be fed, one of the bottles is opened and the amount required poured out. The bottle is to be re-corked, and returned to a cool place. The second bottle is not to be opened until the contents of the first are exhausted. The infant's sanitary surroundings are to be carefully inquired into. Mothers should be instructed to keep their children perfectly clean. Soiled linen should be immediately removed. Children should be repeatedly bathed, and an abundance of fresh air and light afforded. In all cases of cholera infantum or gastro-enteritis of any degree of severity, rest is the *sine qua non* of treatment, and takes the place of much unnecessary medication. When an infant is suffering from any form of gastric or intestinal disturbance, it is well to order a period of complete abstinence from food, varying in length according to the gravity of the case. This period may be wisely occupied in freeing the digestive canal of its irritating contents, which, undigested, act as foreign bodies upon the diseased mucous surface. The sooner the entire alimentary canal is freed from these irritants the better. To lock them up in the bowels by the administration of opiates is the worst possible practice. Rest—complete rest—can only be obtained for the diseased part by emptying and cleansing of the tract

and the temporary withdrawal of food. Whenever the nervous system is suffering, as it so commonly does in consequence of gastro-enteric disease, this necessity of rest is doubly emphasized. (Dr. G. S. Cahill, Medical News, June 17, 1893, p. 660.)

ENCYSTED DROPSY OF THE PERITONEUM FROM TUBERCLE.

In a certain number of cases tubercle of the peritoneum, having its origin in the tubes and consequently focussed in their neighbourhood, causes encysted dropsy of that part. The cyst is formed by adherent coils of the intestine. It is situated between the pubes and umbilicus, and so closely resembles ovarian dropsy, that it is almost impossible in practice to diagnose between them. Rules may be laid down but they are of very little use, and many such cases have been operated upon on the diagnosis of ovarian tumour. After the abdominal wall incision has been made, the nature of the case becomes clear. The fluid is let off and the wound is closed. In doing so be careful not to introduce a drainage-tube, for in these cases the peritoneum is intolerant of it. The curious point is, and it cannot be explained, that this incision and evacuation of the fluid often cures the disease, even although tubercle may be present in the lungs at the time. (Mr. Alban Doran, British Medical Journal, October 21, 1893, p. 888.)

GASTRIC CANCER.—Latency of.

Latent gastric cancer has not been generally recognised, and in many cases the first and correct diagnosis has been changed by the unsuspecting physician, owing to this period of latency with evident improvement and deviation from the ordinary course of the disease. I have in mind at this time a number of cases, and in most of them, if seen sufficiently early, there is decreasing HCl in the secretion, a tardy absorption, with more or less motor involvement, according to the location of the tumour and the amount of secondary dilatation with the period of latency. The examination of the stomach contents shows no improvement, neither does the amount of HCl vary materially from that found at the beginning of the period of latency. In many of these cases the olive-oil and salol tests prove increasing motor strength, and in those patients who have accompanying glandular atrophy and yet show general improvement it may be assumed that constriction does not exist to any great degree, and that the duodenum and intestines are performing their functions with sufficient activity to nourish the patient. It follows, therefore, that the cases in which we most frequently

find latent gastric cancer are either those with localised tumour without much constriction and ultimate gastrectasia, or the infiltrating variety, with only moderate thickening at the pylorus. It is surprising to note the length of time during which the disease remains latent and the long duration of the disease as a result of these periods of latency. I have at the present time a case under observation which has continued for almost six years—that of a woman, now 60 years old, which, seven years ago, commenced with vague symptoms of indigestion and anorexia. For two years there was an increase of these symptoms, with the characteristic changes in the blood found in cancerous diseases, as shown by microscopic examination. Four years ago she had coffee-ground vomit, and later considerable hæmatemesis. Three years ago there was almost complete absence of HCl, with tardy absorption and weakened motor strength. With these symptoms no tumour could be felt, neither was there gastrectasia. At that time she commenced to improve: trial meals showed absence of HCl, but the motor function had improved so that gradually the stomach learned to empty itself, to allow of the more thorough digestion in the small intestine. The subsequent history shows periods of exacerbation and latency until now, when we find a well-marked tumour in the anterior stomach-wall, as shown by distending that organ, and secondary nodules in the groin, and probably in the liver. Some may say that this was originally a case of ulcer which now has a carcinomatous base. This is not probable, for there has been no time when there was hyper-acidity or supersecretion, always deficient HCl; at no time was the secretion of the stomach competent to digest albuminoid foods, while the seat of the tumour, with the earlier cachexia and blood changes, preclude the presence of an original ulcus ventriculi. In these cases of latent cancer without tumour formation the disease strongly resembles pernicious anæmia; but here the microscope comes to our aid and the experienced hæmatologist will have no trouble in distinguishing.

Henry, in a clinical lecture on diagnosis of cancer of the stomach, says: "I had under my care at the same time two cases—one with pernicious anæmia, the other with cancer of the stomach. The latter was far more emaciated, far more feeble than the former, while the red blood-corpuscles were four or five times as numerous. Surely nothing in the whole field of clinical medicine can be more diagnostic than such facts. In carcinoma of the stomach the reduction of the number of red blood-corpuscles does not keep pace with the cachexia; in pernicious anæmia the cachexia does not keep pace with the reduction of the red blood-corpuscles." (Dr. Elsner, New York Medical Journal, May 6, 1893, p. 491.)

GASTRIC ULCER.—Pain in the Dorsal Region in.

For several years I have been paying special attention to the question of the character and nature of the local pain on pressure; above all, to the pain caused by pressure in the dorsal region, which, though recognised long ago by Cruveilhier, and called by him "point rhachidien," has practically received but little attention. I have found that a dorsal point, painful on pressure, could be frequently observed—being almost as constant as that in the epigastric region—and that this point is so sharply circumscribed that for diagnostic purposes it has far more value than that in the epigastric region. This dorsal pressure point is found at the level of and to the left of the tenth to the twelfth dorsal vertebra, rarely higher or lower. The painful area lies usually directly against the vertebra, rarely some distance away from it. In a few instances a localised painful area is found on both the left and the right side. In certain rather doubtful cases of ulcer I have also found a painful area only to the right in the same region. In order that this sign may have a diagnostic value, the fact must be determined whether localised painful points may not be found in other troubles not connected with the stomach. My experience, which rests on considerable material, has convinced me that in no other disease, and especially no other disease of the stomach, is such a painful area to be found with equal constancy. However, painful areas are to be found in the dorsal region in two diseases of the stomach, and also very frequently in gastric neuroses. In such cases, however, the left side is by no means alone involved; moreover, the location of the pain is by no means fixed: it may be found high up in the cervical region, then again in the upper or lower dorsal region. Pressure points of a similar nature are sometimes, though not frequently, found in cases of cancer of the stomach and of the œsophagus. But these pressure areas do not show that marked local character, but rather a diffuse nature, and are most likely due to the presence of infiltrated metastatic glands or of adhesions of the tumour to organs lying back of it. (Dr. T. Boas, Berlin, New York Medical Record, June 17, 1893, p. 737.)

Gastric Ulcer.—Perforation treated by Abdominal Section.

At the Clinical Society, on April 28, 1893, Dr. Lee Dickinson and Mr. Warrington Haward communicated the details of a case of perforating gastric ulcer treated by abdominal section. A woman aged 26, who had previously suffered from painful dyspepsia, was brought into St. George's Hospital in a state of collapse due to the perforation of a gastric ulcer. Abdominal section was performed fourteen hours after the occurrence of

acute symptoms. A few days after the operation the patient was a good deal disturbed by the occurrence of suppurative parotitis on both sides. Subsequently symptoms of consolidation of the bases of the lungs appeared, which cleared up on the right side, but extended on the left. Purulent expectoration and fever continuing, the left pleura was explored without success, and the patient died at the end of six weeks. Post-mortem the stomach was found firmly adherent to the abdominal wall, and the condition of the abdomen was satisfactory. The cause of death was abscess in the base of the left lung with a small diaphragmatic empyema. (The Lancet, May 6, 1893, p. 1066.)

Gastric Ulcer with Perforation.—Operation; recovery. Kriege (*Berliner Klinische Wochenschrift*, December 5 and 12, 1892) reports a case of gastric ulcer with perforation cured by operation. So far as his investigations go this is the only case of perforation following an ulcer of the stomach in which this result has been obtained. His patient was a man forty-one years of age who had had gastric trouble for twenty years with hæmatamesis. Sudden symptoms intervened, which led to the diagnosis of a perforation of a gastric or duodenal ulcer. An incision was made in the linea alba, from the xiphoid process to the umbilicus, and when the peritoneum was opened there was an outrush of odourless gas. The stomach contents were found in the peritoneal cavity, especially on the left side, but there was scarcely any injection of the peritoneum. At first no perforation could be discovered, but finally, after the incision had been carried well to the left, at right angles to the first, through the rectus muscle, exposing the whole stomach, a perforation was found three cm. from the cardiac opening nearer to the fundus than to the beginning of the small curvature. The opening was about the size of a pea. The suturing was very difficult, but was finally successful. The blood and contents of the stomach were then removed from the peritoneal cavity by means of sterilised compresses, and the abdominal wound was closed except at the ends of the incisons, where an iodoform gauze tampon was inserted. The patient was allowed absolutely no food per os, not even pieces of ice. Thirteen days after the operation the first food was allowed to enter the stomach, and at the end of three weeks the patient was permitted to get out of bed. About five weeks after the operation an empyema of the left side was discovered, and a piece of the tenth rib was resected, allowing the discharge of about one-half litre of ill-smelling pus. Three and a half months later the patient had fully recovered his strength. A summary of six cases of ulcer of the stomach and two of the bowels is given. Of these all died except the one reported by Kriege. He concludes that the operation is justified and

necessary when the diagnosis can be determined early enough, and skilled surgical aid is at hand. Operation should be performed as soon as possible. It is important to remember the localities where perforation is most liable to occur. Eighty-five per cent. of the ulcers are in the anterior wall of the stomach, and 40 per cent. of those in the vicinity of the cardiac orifice penetrate the stomach, while on the posterior wall only 2 per cent. cause this trouble. If the place is readily accessible it is best to cut out the entire ulcer, or at least its borders, although in difficult cases suture alone will suffice. Nutrition should be maintained by enemata as long as possible, and even water and ice per os should be avoided. A careful examination should be made after closing the perforation to ascertain whether an encapsulated intra-peritoneal abscess had formed, and the left pleural cavity should also be watched. The results of this treatment will be better in the future than they are at present. The intestinal contents are much more dangerous when they escape into the peritoneal cavity than the contents of the stomach. (Dr. Samuel Lloyd's Article, Annals of Surgery, April, 1893, p. 455.)

GASTRORRHAPHY FOR PERFORATED GASTRIC ULCER.

Mr. Hastings Gilford, of Reading, reports the case of a girl aged 20, who passed successively through the shock of perforation of a gastric ulcer, followed by abdominal section and gastrorrhaphy, then through slight creolin poisoning, double parotitis, the operation of gastrotomy, septic pneumonia and diarrhœa, and ultimately died, on the thirty-first day, of septicæmia, which supervened upon a final operation for closure of the wound. The patient was suddenly seized, nine hours before operation, with all the symptoms of grave intra-peritoneal catastrophe. The abdomen was opened by an incision parallel to and one inch to the left of the median line, starting half-an-inch from the costal margin. Signs of recent adhesive peritonitis in the region of the stomach, and particles of half-digested food were soon brought into view. After considerable searching and breaking down many adhesions, the perforation, large enough to admit the finger, was found in the cardiac end of the stomach towards its posterior aspect. The opening was closed by four sutures so placed as to invert its margin towards the interior of the viscus. The peritoneal cavity was drained by means of a glass tube. On the tenth day there were unmistakable signs that the opening in the stomach had failed to close, for milk given by the mouth escaped freely by the abdominal wound ; there were in addition manifestations of a general septic infection. It was thought advisable to perform gastrostomy

so that food could be introduced directly into the duodenum by means of a tube passed through the pylorus. Three days later it was evident that a collection of pus existed in the neighbourhood of the stomach, various attempts were made to find it by digital exploration of the stomach wall through the gastrostomy opening, but without success. Ultimately the pus was discharged spontaneously by the mouth and through the wound, and the patient made some progress towards recovery. On the twenty-first day the duodenal feeding was attended by nausea, and regurgitation of bile through the pylorus gave rise to so much trouble and distress, that it was determined to close the stomach wound and feed by the mouth and rectum. Unfortunately, a troublesome cough from which the patient suffered, led, ultimately, to the sutures cutting through the wall of the stomach, so that feeding by the wound was again resorted to. A second operation to close the wound was performed, but the patient succumbed on the following day. At the autopsy there was no peritonitis, and the stomach was firmly adherent to the abdominal walls and to the liver; but between the liver and the stomach there was a small abscess, and adjacent to it a larger cavity containing offensive material. There was an hour-glass contraction of the stomach caused by the scarring of an healed ulcer. The ulcer which had perforated showed no trace of union at any part. Two other ulcers were also present. Mr. Gilford makes some interesting comments on the case, and refers to the previously recorded instances in which operative procedure has been undertaken for perforating ulcer of the stomach. (British Medical Journal, May 6, 1893, p. 944.)

GASTROSTOMY —Witzel's Method.

An incision is made under and parallel to the costal arch, and the anterior stomach wall is drawn up into the wound. Two oblique longitudinal folds, running upward from left to right, of the stomach walls are raised and drawn together over a rubber drainage-tube of the thickness of a lead pencil by a series of Lembert sutures. The lower end of this tube should previously be inserted into the stomach through a narrow opening made into the posterior portion of this channel. Further suturing may be employed to bring together more layers of the stomach wall. The second step of the operation consists in attaching the stomach to the abdominal walls. The drainage-tube is conducted out of the edge of the abdominal incision nearest to the median line, and the rest of the abdominal incision is closed. The transversalis and rectus muscles should be split parallel to their fibres, and the drainage-tube drawn through these openings, so that when the muscles reunite they control the opening into the stomach. It is, therefore, evident that the

new alimentary canal does not lead into the stomach directly in a straight line, but runs obliquely; in order to escape, the contents of the stomach must pass through this indirect canal, rendering regurgitation almost impossible. Mikulicz has operated in this way five times with excellent results. (Dr. Samuel Lloyd's article on "Some Recent Contributions to the Surgery of the Stomach," Annals of Surgery, April, 1893, p. 452.)

HERNIA.—Radical Cure; Results.

The time has come when one may operate upon almost every case of hernia not only without danger to the patient, but also with an almost certain prospect of success. That the mortality is practically nothing one may convince himself from the latest statistics. Svensson and Erdman had from 106 cases 1 death from enteritis and nephritis on the tenth day when the wound was perfectly healed. Macewen operated 98 times for the cure of inguinal hernia from 1889 to 1890. The only fatal case was that of a boy 3 years old who contracted scarlet fever after the operation and died within thirty-six hours. Bassini has operated 251 times for non-strangulated hernia by his method, with but 1 death, and this from pneumonia fifteen days after the operation. The wound in the fatal case had healed per primam. Lucas-Championnière from 111 cases lost 1 from pneumonia. Kocher reports 119 operations for the radical cure of hernia with 1 death. The cause of death was pulmonary embolism fifteen days after the operation and when the wound was perfectly healed. We have operated 82 times for the radical cure of hernia without a death. As to the ultimate results, I shall refer only to those of Macewen, Bassini and myself. Macewen failed but once in 98 cases, and has had several cases under observation for ten years or longer. Bassini failed but 7 times in 251 cases; 108 cases had been cured from one to four and one-half years, 33 from one year to six months, and 98 from six months to one month. In only 4 cases was the result unknown. It is now nearly four years that I have been operating for the cure of inguinal hernia in the manner described by me, and thus far I have no failure to record, if we exclude the recurrences which I have reported, and which could not be ascribed to my method. (Prof. Halstead, Annals of Surgery, May, 1893, p. 555.)

[See also article by Prof. Halstead "On Operation for the Radical Cure of Inguinal Hernia, at p. 323 of this volume of the *Retrospect.*]

Hernia.—Resection of the Intestine and Immediate Suture in Gangrenous Hernia.

At the Royal Medical and Chirurgical Society, on March 28, 1892, Mr. Kendal Franks related the case of a woman, aged 30,

who had an umbilical hernia of three months' duration. It became strangulated on September 22, 1891. Thirty hours and a quarter afterwards herniotomy was performed. The abdomen was found to be full of a gelatinous fluid associated with an ovarian tumour. The loop of intestine proved to be gangrenous. Nine inches and a quarter were excised, and the ends of the intestine immediately united by means of Gély's suture. The abdominal cavity was closed, and a glass drainage-tube inserted, which was removed on the fourth day. The bowels acted regularly after the fifth day, and recovery was complete. Five weeks later the abdomen was again opened, and the ovarian multilocular semisolid cyst was removed. The sutured intestine was inspected. The union was perfect; the line of union could be felt as a thickening in the gut, but could not be detected by the eye. The author discussed (1) the coexistence of ascites with strangulated hernia, and (2) the treatment of gangrenous hernia. The various methods of treatment were reviewed, and the following were some of the conclusions arrived at: Gangrenous hernia might be treated on one of two principles, either by resection and immediate suture, or by the formation of an artificial anus. The latter necessitated a secondary operation for its cure by the use of Dupuytren's enterotome, or by secondary resection and suture. To estimate the relative merits of these two principles of treatment, the death-rate of immediate resection and suture must be compared with the death-rate following the formation of an artificial anus, *plus* the death-rate of the secondary operation required for its cure. The death-rate in cases of gangrenous hernia treated by the formation of an artificial anus was 80·7 per cent. The death-rate of secondary resection and suture for the cure of artificial anus was 38 per cent. The death-rate following the use of the enterotome was 7·3 per cent. The mortality which attended resection and immediate suture in gangrenous hernia was shown, in a table of 220 published cases presented to the Society, to be 48 per cent. The author concluded that intestinal resection and suture should be the operation of choice in gangrenous hernia, and that simple enterotomy, followed by the formation of artificial anus, should be reserved for absolutely special cases, and should be considered as an exceptional procedure. (British Medical Journal, April 1, 1893, p. 696.)

HYPERTROPHIC CIRRHOSIS OF LIVER.—Calomel in.

Sior (*Berl. klin. Woch.*, December 26, 1892) relates some quite unexpected results of the calomel treatment in this disease. A man, aged 30, began to suffer nine months previously from

jaundice, which steadily increased, and was accompanied by much loss of strength. On admission he was deeply jaundiced. The liver was much enlarged ; the hepatic dulness began at the fourth rib, and the liver could be felt three finger-breadths below the costal margin of the nipple line. The surface was regular, somewhat hard, and not tender. The spleen was enlarged. There was no ascites or œdema. The urine was deeply bile stained, but the stools were not completely colourless. The temperature rose slightly in the evening. There was no history of alcohol. Various forms of treatment, including potassic iodide, were tried for a month, but without the slightest benefit. The patient was then given calomel, in doses of 0.05 g., six times a day for three days, the drug being then omitted for the three following days. From this time the patient's condition commenced to improve in a remarkable fashion. The jaundice soon began to diminish, and the appetite was better. Eventually even the liver became less in size, as well as the spleen. At the time of his discharge, after three months of such treatment, the jaundice had disappeared, there was no bile pigment in the urine, and the stools were pale-yellow in colour. The liver only extended one finger's breadth below the ribs in the nipple line, the upper limit of the dulness beginning at the sixth rib. The nutrition was excellent, and the strength good. The treatment was to be continued at home. The author then establishes the correctness of the diagnosis, and shows that the hepatic affection was not the result either of obstruction of the common bile duct, or of syphilis, or of hydatid disease. He refers to the view of this form of cirrhosis being due to catarrh of the bile channels, with polycholia. (Epitome of the British Medical Journal, January 21, 1893, p. 12.)

MEDIASTINAL GROWTH OPENING THE ŒSOPHAGUS AND AORTA.

At the Pathological Society, on May 2, 1893, Dr. Hale White showed an example of this rare event. Sudden death occurred with a rush of blood from the mouth. It was a rare event for the aorta to be perforated. The growth—a round-celled sarcoma—pressed upon the aorta so as to give rise to a murmur mistakable for an aortic systolic. Mr. Shattuck had stated that there were two such specimens in the museum of St. Thomas's Hospital. (British Medical Journal, May 6, 1893, p. 951.)

ŒSOPHAGUS, CICATRICAL STRICTURE.—Operative Treatment of.

Dr. Willy Meyer appends the following conclusions to a communication on the subject. (1) After swallowing acids, &c., sounding should be begun as soon as it can be made out that the

internal wounds have healed, certainly not later than two to four weeks after the accident. This prophylactic treatment has to be continued at regular intervals for a long period—if necessary, for life. Gastrostomy can be primarily performed for this purpose (Maydl, von Hacker). (2) If a stricture of the œsophagus has developed and is impermeable from the mouth, the patient should be submitted to an operation as early as possible. No forcible delatation or boring with the sound should be permitted. If the latter is done, the formation of a false passage is favoured. The œsophagus has thus often been perforated. (3) External œsophagotomy for the establishment of a temporary fistula in the neck (œsophagostomy) will be found useful and sufficient in many of these cases, especially in children. The stricture can be generally passed quite easily from this opening. A tube can be left *in situ* without the annoyances which are caused by passing it through the nose and pharynx. This operation is always indicated if, besides an impermeable stricture in the lower portion of the œsophagus or behind the bifurcation of the trachea, a second (or third) one is present at a level with, or not far below, the cricoid cartilage. (4) In grown patients and those who are emaciated and require immediate forcible nutrition, primary gastrostomy, with subsequent retrograde sounding, may be preferable. (5) If the stricture has been successfully stretched, and if the same sound which passed from the wound in the neck can also be pushed down through the mouth, the fistula has to be closed. If gastrostomy had been performed, this second operation generally requires laparotomy and separate suture of stomach and abdominal wound. (6) In a number of cases there is a limit to stretching and divulsion, or the repeatedly widened stricture rapidly recontracts. Then internal œsophagotomy is indicated as the only means to cure the patient. (7) Internal œsophagotomy, if performed under these circumstances, is a very dangerous operation, especially on account of our present lack of means to render the operating field free of infectious material. (8) A thorough disinfection of the intrathoracic portion of the œsophagus seems feasible by first adding gastrostomy to external œsophagotomy, and *vice versa.* Then the operating field and the stomach can be cleansed by antiseptic irrigation before and after the operation. Through temporary antiseptic tamponade of the cardiac portion of the œsophagus and of that between the fistula in the neck and pharynx we may hope to guard against contamination of the wound. (9) From a wound in the neck internal œsophagotomy can be carried out in the same way and with the same instruments as used for dividing strictures of the anterior urethra from within. The division should be made in a retrograde way only, the knife having first passed beyond the stricture. A guide

pushed up from the gastric fistula will help to accomplish this, even in obstinate cases. It may become necessary, especially in adults, to have an instrument of a special length, and sometimes also curve, constructed for this purpose. (New York Medical Journal, November 19, 1892, p. 567.)

OXYURIS VERMICULARIS.—Treatment.

Threadworms are one of the commonest and yet one of the most troublesome ailments we are brought into contact with in practice, and unless treatment is firmly and properly carried out, relapses are certain every few months, often producing reflexly epilepsy, chorea, convulsions, insomnia, and many other debilitating and distressing troubles. First, one or two remarks as to the habitat of the nematode. The ova may develop in the large intestine of the host, or after irritation and scratching of the anus the ova may be carried to the mouth of the patient, swallowed and then the embryo may be liberated from its cell-wall by the action of the gastric juice and then gradually become a mature oxyuris and inhabit the cæcum and large intestine. By the time the female oxyuris reaches the sigmoid flexure and rectum the uterus is full of ova which may be born into the intestinal tract or liberated on the expulsion of the oxyuris from the anus. *Treatment.*—The child should be bathed twice daily, the underclothing changed frequently, a draw sheet put below the patient at night, the nails kept short, the fingers dipped frequently in an infusion of quassia, and the anus smeared night and morning with an ointment composed of nitrate of mercury with a small quantity of extract of quassia added. The condition of the bowels should be attended to. Mercury with chalk and rhubarb and soda powder should be prescribed to secure daily evacuation. Now santonin must be given every other night for a week and if taken longer santoninism must be guarded against—viz., tenesmus, spasms, yellow vision, hemorrhages and red-yellowish urine. Attention should be paid to the bile secretion, the great antiseptic of the intestinal tract. The endeavour should be to increase peristalsis and diminish the secretion of mucus by giving as a tonic citrate of iron and strychnine in moderate doses after food. I have lately been using with great benefit extract of quassia made into a suppository with cacao butter (one to three grains); these suppositories are easily introduced at night and children do not object to them. Injections are disliked by children and it is difficult to get the mother or nurses to take the necessary trouble. An injection of menthol (one grain) dissolved in one ounce of olive oil is often useful. The child should have abundance of out-door exercise and a free diet, avoiding uncooked vegetables, fruit, sweets, &c., and anything likely to produce catarrh or increase the mucus.

The patient should be isolated during the period the oxyurides are being expelled, kept from school, should sleep alone and not be allowed to mingle with other children. This treatment should be maintained until all signs of oxyurides are obliterated. (Dr. B. H. Nicholson, Colchester, The Lancet, January 7, 1893, p. 17.)

PANCREAS.—Hemorrhage into.

Koetschau (*Centralbl. f. allgem. Path.*, June 2, 1893) relates the case of a patient, aged 24, who was suddenly seized with violent pain in the cardiac region, which passed off gradually, leaving vague, transient pain in the upper part of the abdomen. This also passed away, and the patient believed herself well again, when, about twenty-four hours after the first attack, she was seized with sickness, accompanied by a feeling of fulness in the region of the stomach, and symptoms of collapse. Death quickly followed. The necropsy showed that a great effusion of blood had taken place into the pancreas, which was occupied by black blood clot, and swollen to the size of a moderately large forearm. Koetschau is disposed to believe that the primary disease in this case was a fatty degeneration of the pancreas, and in support of this opinion is the fact that the patient had taken alcohol in great excess. In the same number H. Stieda records a case of cyst of the pancreas, which he gives strong reasons for believing arose out of a blood effusion. He quotes from Seitz's monograph on affections of the pancreas. This author states that the main causes of rupture of the pancreatic vessels are sclerosis of the vessel wall, and injuries, fatty degeneration, and inflammation of the pancreas. In Stieda's case the first cause appears to have been operative. (Epitome of the British Medical Journal, July 20, 1893, p. 17.)

PANCREATITIS HEMORRHAGICA.

At the New York Pathological Society, on January 11, 1893, Dr. George P. Biggs presented specimens from two cases of this very rare condition. He said that a search through the records of the Society showed, that although several cases of necrosis and suppuration had been reported, there had been only one case of hemorrhagic pancreatitis, and this was reported in 1853, and the description was rather defective. The first specimen which he presented had been found at the autopsy on a German labourer, thirty-two years of age, who had been taken suddenly, at 2 p.m., January 6, with intense pain in the right side, at the junction of the right inguinal and lumbar regions. Shortly after this he began to vomit. Previous to this attack he had been in good health, although a heavy drinker. When admitted to the Chambers Street Hospital, at

2.42 p.m., he also complained of severe pain in the epigastric region ; his pulse was rather slow, the temperature 100° F. ; the abdomen very rigid, and somewhat distended. Palpation revealed nothing. He had been drinking heavily for two days. A diagnosis was made of perforating appendicitis with acute general peritonitis, and an operation was advised, but consent was withheld until too late. His pulse soon became rapid and feeble, vomiting of bile was frequent, and he tossed about the bed, holding his hand over the seat of pain. He had been somewhat constipated. Death occurred twenty-four hours after the onset of the pain. The autopsy was made after a delay of two days, but in the interval the body was frozen. Much to the surprise of those who had seen him during life, there was no peritonitis, the vermiform appendix was perfectly normal, and, with the exception of the pancreas, nothing was found in the organs except changes due to alcoholism—fatty liver, and a moderate amount of chronic nephritis. The intestines were filled with a large quantity of mucus, which contained the usual amount of bile. In the location of the pancreas a very dark mass could be seen through the peritoneum ; this proved to be the pancreas enlarged to three or four times its normal dimensions, and its head projecting considerably to the right of the spinal column, displacing and compressing the duodenum. It was 16 ctm. long and about $6\frac{1}{2}$ ctm. transversely and vertically. The entire organ was of a reddish-brown colour, and to the naked eye presented no trace of pancreatic tissue, looking like one large, firm clot. Scattered through this mass were very dark spots, probably the site of older hemorrhages. The layers of fat between the layers of the mesentery were also extensively infiltrated with very dark blood, the infiltration extending down the sheath of the left psoas muscle. There was no fluid blood at any point. A probe could be easily passed through the duct of the pancreas. No microscopical examination had yet been made. The second case was also in Chambers Street Hospital. He was a German labourer, forty-five years of age. Nothing could be learned of his previous history, except that he had been intemperate in his habits. Two days before his death there was a gradual development of dyspnœa and pain in the epigastrium. There was vomiting, but it was not so severe as in the first case. The dyspnœa was the most marked symptom, and was so severe that he was obliged to sit up in bed with the hands over the abdomen. His pulse was very rapid and feeble. He died two hours after admission to the hospital. On account of the short time he was in the hospital, no accurate observations were made of his condition. At the autopsy the pancreas was found considerably increased in size, measuring 20 ctm. in length, by 6 ctm. vertically, and 4 ctm. antero-posteriorly. The

entire organ was of a brownish-black colour, and to the naked eye no distinct pancreatic tissue could be seen. In this case there was extensive infiltration of the dark blood into the surrounding cellular and adipose tissue, and in addition to this, behind the peritoneum, between the tail of the pancreas and the diaphragm, there were about a pint and a half of fluid blood. This was the main point of difference between this and the former case. Some of the hemorrhage seemed to be old, as the sections under the microscope showed considerable black pigment. They also showed extensive destruction of the pancreatic tissue, and extensive fatty change in the portion still remaining. The history in the first case is that usually given. Fitz, in his paper read before this Society in 1889, reported seventeen cases of this condition, which he had been able to collect, and the appearances he described correspond to those just reported. Virchow recently spoke of it as one of the rarest conditions found on autopsy. Both patients were well-developed men, with much adipose tissue, and this was also noticed in most of the cases reported by Fitz. (New York Medical Record, February 4, 1893, p. 153.)

PANCREATITIS WITH HEMORRHAGE.

Day (*Boston Medical and Surgical Journal*, cxxvii., No. 24, p. 569) reports the case of a medical man, 49 years old, who for a long time had been troubled with digestive derangement, which of late years had been aggravated by irregularity of hours of sleep and of meals. Three years before death he was, on one occasion, seized suddenly with an attack of syncope, for twelve hours remaining in a condition of collapse, and gradually recovering after several weeks of debility. For a year his condition had been growing progressively worse, though he continued at his work, using "stimulants" to induce sleep. For a number of months there had been complaint of a feeling of pain and distress in the epigastrium, for the relief of which chloroform was employed topically and sometimes by inhalation. Finally, the man concluded to withdraw from active life and take much-needed rest. Uncontrollable vomiting of undigested food, greenish liquid, and a small quantity of mucus, with violent retching, set in at this time, but at no time was there hæmatemesis. Exquisite tenderness developed in the epigastrium and deep pressure could not be tolerated at all. There was complaint of agonising pain in the epigastrium and in the right hypochondrium. For a number of months there had been tenderness over the lower ribs upon the right side posteriorly. There was progressive failure, mentally and physically. Much of the time there was delirium. Exertion induced syncope. The pulse, usually abnormally slow, became quick and weak.

At no time was there noteworthy elevation of temperature. The bowels were habitually constipated and purgatives were often employed. The stools were at times clay-coloured; at other times they presented evidences of the presence of bile. At one time there was decided jaundice, which disappeared after the administration of calomel. Much of the time the conjunctivæ and the skin were muddy. Sweet or sour substances were not tolerated. Vomiting was controlled by the employment of suppositories containing tincture of opium. Slight transient improvement took place. Finally, vomiting and retching suddenly set in, with epigastric pain; collapse occurred and progressed to death. At the post-mortem examination the stomach appeared to be enlarged; its walls were thinned; the mucous membrane was injected and was covered with a small amount of mucus. The gall bladder contained a small concretion of inspissated bile; two other stones were lodged firmly at the duodenal extremity of the common duct, the lumen of which they almost but not quite completely occupied. The head of the pancreas was, perhaps, slightly more dense than usual. The body and tail were enlarged in all dimensions, and abnormally hard and dense, a light chocolate-coloured fluid exuding from the surface. The colour of the body and tail approached chocolate. On the surface were many dark areas, more or less irregularly round, and from one-half to three-fourths of an inch or more in diameter, on section proving to be conical in shape, and in colour and appearance suggestive of altered blood. There were, besides, many smaller, hard and dense, light-gray nodules. The pancreas was submitted to Professors Fitz and Whitney, of the Harvard Medical School, both of whom regarded the condition as one of hemorrhagic infiltration. The most common prominent symptom of pancreatitis is deep-seated pain in the upper part of the abdomen, radiating upward and backward, often intense and of sudden onset, and sometimes attended with nausea, vomiting, and retching. There is usually little or no elevation of temperature. Emaciation is often extreme. There may, besides, be pallor, restlessness, thirst, rapidity and compressibility of pulse, and heavily coated tongue. When hemorrhage occurs, the symptoms are those of sudden collapse, rapidly progressing to a fatal termination. The condition is to be differentiated from peritonitis from perforation; irritant poisoning; intestinal obstruction. Pancreatitis may result in suppuration or gangrene. Recovery may take place, but attacks are likely to recur. The treatment is as yet palliative. Should suppuration occcur, the pus to be evacuated.

Fitz (*Ibid.*, p. 571) maintains that the multiple at-necrosis frequently found in association with hemorrhagic and gangrenous pancreatitis is secondary to the latter, and suggests the

possibility of a decomposition of the neutral fat in the cells into the fatty acids, which combine with lime to form the crystals found in the necrotic nodules.

Noyes (*Ibid.*, p. 572) states that the appearance of fat in the alvine dejections is a valuable sign of pancreatic disease, both in cases in which constipation exists as well as in those in which there is diarrhœa. The amount of fat appearing in the dejections may exceed that which has been ingested; it is said even that oleaginous material has continued to appear in the stools after all fatty matter had been excluded from the diet. An inability to digest oleaginous, saccharine, and amylaceous articles of food should suggest pancreatic disease. Free fat occasionally appears in the urine in case of disease of the pancreas. In a certain proportion of cases of pancreatic disease sugar appears in the urine. (American Journal of the Medical Sciences, March, 1893, p. 322.)

PERFORATING GASTRIC ULCER TREATED BY ABDOMINAL SECTION.

At the Clinical Society, on April 28, 1893, Mr. Warrington Haward communicated this case for himself and Dr. W. Lee Dickinson. A woman, aged 26, who had previously suffered from painful dyspepsia, was brought into St. George's Hospital in a state of collapse due to the perforation of a gastric ulcer. Abdominal section was performed fourteen hours after the occurrence of acute symptoms. An ulcer which would admit the finger was found opening into the cavity of the peritoneum. Owing to the great infiltration and thickening of the gastric wall the ulcer did not admit of excision. The stomach was therefore sutured to the abdominal wall and the margins of the ulcer to the edges of the incision, a drainage-tube inserted into the stomach, the peritoneum washed out, and the rest of the wound closed. A gastric fistula was thus formed, and all further danger of extravasation from the stomach into the peritoneum was prevented. Subsequently symptoms of consolidation of the bases of the lungs appeared, which cleared up on the right side but extended on the left. Purulent expectoration and fever continuing, the left pleura was explored without success, and the patient died at the end of six weeks. Post-mortem the stomach was found firmly adherent to the abdominal wall, and the condition of the abdomen satisfactory. The cause of death was abscess in the base of the left lung, with a small diaphragmatic empyema. Allusion was made to a recent paper by Drs. Penrose and Lee Dickinson on subphrenic abscess in connection with perforating gastric ulcer, and some suggestions were made with regard to the surgical treatment of such cases. (British Medical Journal, May 6, 1893, p. 952.)

PYLOROPLASTY.—Results.

I have found references to 23 cases of pyloroplasty (including my own case). Of these 16 recovered from the operation, 5 died from it, and in 2 the result is not stated in the account I have seen. This gives a mortality at present of just under 25 per cent. Greig Smith states that the general mortality of Loreta's operation is "about 40 per cent." Of the fatal cases 1 died from peritonitis, 1 from collapse, 1 from exhaustion, 1 from gangrene of the lung, and 1 from internal hemorrhage—in this case the surgeon merely stretched the pylorus and then divided it, and the case is of no value in any comparison of the results of divulsion and pyloroplasty. Of the 16 cases that recovered 2 died shortly afterwards (two months and five months) from tubercular disease. Heineke's first patient was known to be well four years after the operation, Mikulicz's second patient was well one year and a half subsequently, and Novaro's second patient was well two years later. Most of the other cases have been published at short intervals after the operations. The experience of the operation thus far does not show it to be attended with any peculiar or special danger. The cases referred to were operated upon by Heineke, 2; Mikulicz, 2; Bardeleben, 3; Novaro, 6; Lauenstein, 2; Senn, 2; and one each by Van der Hoeven, Carle, Koehler, Falleroni, Postempski, and myself. (Mr. Pierce Gould, The Lancet, May 20, 1893, p. 1185.)

(Mr. Gould has overlooked a case recorded by Dr. Limont and Mr. Fredk. Page in *The Lancet*, July 9, 1892 (also *Retrospect*, vol. cvi, p. 329). This makes his case the second, and not the first recorded in this country.—Ed.)

[See also article by A. Pearce Gould, Esq., on "A Case of Pyloroplasty for Non-malignant Stenosis of the Pylorus," at p. 293 of this volume of the *Retrospect*.]

RECTUM, CANCER OF.

At the Royal Academy of Medicine, in Ireland, on December 9, 1893, Dr. Ball read, in abstract, a communication on cancer of the rectum. Dealing with the diagnosis, Dr. Ball laid great stress on the importance of early recognition, and the fact that many cases were treated as chronic dysentery where a digital examination would have shown that cancer existed. Having discussed the limits of an excision of the disease, he presented a table showing the results of incision in 9 cases in his practice. In 1 (melanotic sarcoma) the patient remained entirely free from recurrence and able to follow her occupation 8 years after operation; in another (cylinder-celled epithelioma) the patient, a medical man, remained quite free from return 6 years after operation; in 3 cases death followed operation, 1 being due to

shock and 2 to septic peritonitis, while the remaining 4 lived for periods of from 1 to 3 years. He discussed the methods of reaching the disease higher up by the division of the sacrum; two of his cases had been performed in this way, both of which were successful. He considered that these improved methods had largely increased the scope of the operation. Regarding colotomy, the opinion was expressed that in a large proportion of cases of cancer unsuitable for incision obstruction never became a prominent symptom, and that these cases were much better left without operation. Colotomy was, however, clearly indicated where obstruction was commencing; colotomy should be had recourse to early, before any of the secondary changes due to obstruction were marked. The operation proposed by Dr. Ball in 1884 of making the incision in the left linea semilunaris he still advocated strongly, and stated his belief that before long lumbar colotomy would ceased to be a recognised surgical operation. He had much simplified the method of operation, so that now it could be done in a few minutes. The incision should be small—1½ inches—at the outer border of the rectus muscles. A loop of colon, drawn out and fixed by a button suture through the abdominal wound on either side and through the meso-colon; stitches through the abdominal incision at either angle, including the muscular coat (preferably the longitudinal band) of the bowel, usually sufficed to keep it in place. If the symptoms are not urgent the colon is not opened until adhesions have taken place; but in the cases where immediate opening has been practised no serious consequences have ensued. Extreme meteorism renders the operation somewhat difficult, and in two instances where this symptom was marked Dr. Ball had recourse to the lumbar incision; now, however, by making a small opening in the abdomen and plugging with sterilised sponges, he considers the anterior operation superior, even where there is an extreme amount of abdominal distension. Dr. Ball adduced a table of 13 cases of colotomy which he had performed by incision through the linea semilunaris, in all of which recovery from the operation resulted and relief ensued. (The Dublin Journal of Medical Sciences, January, 1893, p. 73.)

Rectum, Cancer of.—Results of Excision.

Until within fifteen years extirpation of the rectum had fallen into disrepute, both because of the great mortality which attended the operation and the recurrence of the disease after it. By no means all cases of rectal cancer are suitable for operation. For example: Cripps, in 400 cases, either selected or obtained consent to operate in but thirty-eight. Of this number three died as the result of operation, causing a mortality of 8 per cent., ten recurred within a year, five in one to three

years, one died still later. In twelve there was no recurrence, and of these seven had outlived the period of three years. When recurrence was noticed it was found that the cancerous foci left behind grew more rapidly than did the primary tumour. In selecting cases for operation it is necessary to subject them to the most rigid examination, and this to be absolute should be done under anæsthesia. Only those are suitable for operation in whom the entire disease is removable. While an occasional case has been cured where the recto-vaginal septum has been invaded, the rule holds good that if the disease has extended beyond the limits of the bowel, be it in whatever direction it may, the case is usually inoperable. In making the examination the finger is of greater service than the speculum. Those presenting the most promising features do not involve the entire circumference of the rectum, are capable of being moved in various directions, up and down as well as laterally, and are located within a few inches of the anus. Allingham considers it unsurgical to attempt the extirpation of a cancer located four or five inches up the rectum. There seems to be the greatest variance in the results obtained by operators. Stierlin collected 362 cases from whom the rectum had been extirpated The mortality following operation in the hands of different operators ranged from 4 to 58 per cent. There is no doubt that the number of radical operations on the rectum is increasing with each year. Between the years 1886 and 1891 Czerny had presented to him eighty-two cases of rectal cancer, sixty-eight of whom he operated on by different methods. Roughly grouped, thirty-two were done by perineal methods, and among these there occurred one death. In thirty-six he resected the bones, and in these there were seven deaths. Of the thirty-one surviving the perineal operations those not cured lived, upon an average, two years, while one patient lived four years. Ten, or about one-third of the entire number, recovered from the removal of the malignant tumour by the sacral route, nine died within six years, eighteen were alive at the time of report, six of whom had outlived the period of two years. These results, while not brilliant, justify, we must admit, the removal of rectal cancer by the knife. (Prof. Nathan Jacobson, Annals of Surgery, April, 1893, p. 405.)

Rectum. — Position of the Patient in Excision of Tumours of the.

A week ago I removed a tumour of the rectum, about 1½ inch by 1 inch, or rather larger, situated so high up the bowel that it was impossible without enlarging the anus to estimate either its exact size or position. Instead of placing the patient in the lithotomy position, I turned him on his face close to the side of

the table ; the right thigh was extended, but the left hip was flexed, the thigh hanging over the side of the table, and the knee resting on a chair. The ease with which the operation was performed, as compared with the difficulties which are experienced when the patient is in the lithotomy position, prompts me to ask you to insert this note, because, as far as I know, the latter is the most common, if not the invariable one used, at present. The operation consisted in making a mesial incision as far as the level of the third foramen of the sacrum, removing the coccyx, and separating the attachment of the sacrociatic ligaments as far as the the third foramen on the left side. The rectum was then slit up from behind, and the growth pulled down and removed with scissors. An opening of considerable size was made in the peritoneum, but as this could be perfectly well seen, it was stitched up with the greatest ease. All bleeding vessels could be at once picked up without difficulty, and all the steps of the operation could be accomplished with much greater precision than I have ever found possible in the lithotomy position. Those who have not adopted this plan will, I am sure, find it worthy of a trial, and if it has been put in practice by others, I hope that the absence of any account of it in the text-books will be sufficient excuse for thus drawing attention to it. (Mr. Godlee, British Medical Journal, July 8, 1893, p. 64.)

RETRO-PERITONEAL LIPOMATA.

Retro-peritoneal lipomata, according to Terrier and Guillemain (*Rev. de Chir.*, September 10, 1892), commence in the cellular tissue lying between the peritoneum and the posterior abdominal wall. In two cases described by them, the tumour started in the cellular tissue on the right side of the vertebral column, probably in the iliac fossa. These tumours grow slowly, and may, as they increase, remain behind the peritoneum, pushing before them the intestines which lie on their anterior surface, or they may insinuate themselves between the two layers of the mesentery, and thus give rise to one variety of tumour of the mesentery. In their advanced stages they form adhesions to the neighbouring organs. Histologically they may be pure lipomata, or in some cases myxo-lipomata, or in others sarcomatous myxo-lipomato. The clinical appearances of this affection are far from being characteristic, and in many cases their nature is not discovered until an operation is performed or a necropsy made. They have been diagnosed as cysts of the ovary, tumours of the kidneys, and as extrauterine fœtations. The character of the swelling may be made evident by aspiration. If a cannula is inserted in the case of ovarian or mesenteric cysts, fluid will be evacuated ; in the case of

sarcomata a few drops of blood will at once flow ; whilst in lipomata nothing will be evacuated unless the cannula is left in and moved about, when a very small amount of blood will flow out. The authors diagnosed one of their cases in this way. These tumours may attain a very large size, and then, owing to their weight, and to the pressure which they set up upon the blood and lymphatic vessels of the intestines, they give rise to diarrhœa and progressive cachexia, leading to death. If the tumours are smaller, and they are not actively increasing in size, the prognosis is better. Owing to the size of the tumours, and their extensive adhesions to neighbouring structures, their removal is a matter of considerable difficulty and danger. Eleven cases have been submitted to complete extirpation, and out of these only four recovered. (Epitome of the British Medical Journal, October 29, 1892, p. 70.)

SACRAL RESECTION.

Rydygier (*Centbl. f. Chir.*, 1893, vol. xx, p. 1) offers this procedure as a substitute for the Kraske-Hochenegg method. He claims that it avoids the large posterior opening when the rectum is left without support, a condition which he thinks is the cause of some of the failures of union of the rectal wound, and subsequent fæcal fistulæ. The rectum is pulled backward by the contracting cicatrix, flexed, and its lumen diminished. The replaced segment of the sacrum prevents this flexion and protects the suture, or, if a fistula forms, favours its early closure. Temporary resections have been done by Billroth, Schlange, Heincke, Kocher, Arnd, Levy, Beck, and Hegar. The resection increases the time of the preliminary operation and lengthens the operation. Also necrosis of the replaced segment has been mentioned. The Rydygier operation begins with an incision, which extends downwards on the left side, parallel and about one centimetre distant from the border of the sacrum and coccyx bone just below the superior iliac spine to the median line at the tip of the coccyx, and then along the râphe almost to the anus. Through this skin incision the sacro sciatic ligament (lesser and greater) are divided, and the soft parts below the coccyx. Then the soft parts are separated from the anterior surface of the sacrum till the anterior branches of the nerves are clearly visible. Then, as usual below the third sacral foramen, and about two finger breadths above the sacro-coccygeal articulation, a transverse incision is made from left to right, and through this the sacrum is divided horizontally with chisel and mallet. Injury to the right sacral nerves is avoided as they leave the foramina. At the completion of this division of the sacrum the triangular osteo-plastic flap thus formed can be folded over to the right.

After the resection of the rectum and its union by suture, the cavity is loosely filled with iodoform gauze and the flap replaced. It is not sutured in place, but the incision of the soft parts is closed except below where the gauze is brought out. In his case Rydygier left the entire wound open. The flap gradually sank back into place in a satisfactory manner. By this method Rydygier claims that there is no danger of necrosis of the flap. That the drainage is as satisfactory as by the usual method. That the resection is done as easily as the usual Kraske operation. The disadvantages of the Levy method are that the hemorrhoidal nerves are cut and the sphincter paralysed; that the section of the gluteal muscles results in profuse bleeding, and that the replaced flap impedes drainage. The Heineke-Kocher method is difficult to perform, and drainage is not good. The Hegar method is liable to cause necrosis. According to Rydygier, the incision wound is similar to the Hochenegg-Wölfer cut with the transverse addition. Drainage is favourable. The coccyx is not excised. Hemorrhage is diminished, since the soft parts are not separated from the bone. (Boston Medical and Surgical Journal, May 18, 1893, p. 498.)

SUBPHRENIC ABSCESS.

At the Association of American Physicians, June, 1893, Dr. A. L. Mason, of Boston, read a paper on "Subphrenic Abscess, with Especial Reference to Cases which Simulate Pneumothorax." He pointed out that the abscesses beneath the diaphragm may arise *in situ* as a sequel of disease of contiguous organs, stomach, spleen, liver, or intestine, or they may extend from the region of the kidney or cæcum, in the latter case being sometimes retroperitoneal. If such an abscess contains air, there is most likely communication with some part of the gastro-intestinal tract, usually in consequence of perforating ulcer of the stomach, duodenum, or vermiform appendix. The collection may raise the diaphragm to the level of the third rib and give rise to phenomena resembling those of pyopneumothorax. Subphrenic abscesses that do not contain air present the physical signs of empyema, which, indeed, may coexist through rupture into the pleural cavity. Such abscesses also occasionally break into the lung, especially when the primary condition is abscess of the liver. A brief report of five cases was read, in two of which signs resembling those of pyopneumothorax were present. In two of these the cause was the perforation of a gastric ulcer; in one, the perforation of a duodenal ulcer; in one, the rupture of a perinephric abscess. In a fifth case the origin remained undetermined. An air-containing abscess below the left leaflet of the diaphragm is almost always indicative of a perforating gastric

ulcer; such an abscess below the right leaflet is indicative of a perforating duodenal ulcer, though appendicitis may likewise be the cause. The prognosis depends almost entirely upon the efficacy of surgical treatment. One case in five has recovered. Those due to duodenal ulcer have been fatal. Dr. S. J. Meltzer, of New York, read a paper on "Subphrenic Abscess." He reached the conclusion that the primary cause of subphrenic abscess is, as a rule, to be found in the abdomen. He reported, however, a case in which such an abscess followed lobar pneumonia, and one other such case has been recorded. He looks upon metapneumonic pleurisy as a possible cause of subphrenic abscess, the causative microörganisms of the former being carried in the lymph-channels below the diaphragm. Dr. Osler briefly referred to several cases of subphrenic abscess. In the first case the abscess was secondary to appendicitis and simulated abscess of the liver. A correct diagnosis was made, and recovery followed operation. The second case was a left-sided pyopneumothorax subphrenicus, with resonance on percussion when the patient was on his back, but with dulness when the patient was on his side. The process was tuberculous, and death occurred from pulmonary tuberculosis. The third case resembled those of Dr. Metzler's, being apparently secondary to empyema. In two other cases the diagnosis was respectively hepatic abscess and empyema. The true conditions were discovered upon operation, and recovery followed. Dr. Welsh said that in the first case of Dr. Osler's the colon-bacillus was found in the pus of the abscess. This is not found except when there is communication with the alimentary canal. The fact is of interest in the diagnosis. Dr. Welsh expressed surprise that cases of peritonitis following pneumonia are not more common. Dr. Fitz said it would be better to consider these cases under the name of "subphrenic peritonitis." This leads more directly both to the true etiology and to the treatment. He referred to a case in which there had been some thoracic inflammation, and subsequently a pleural effusion, with a probable subphrenic collection of pus. A point in etiology is traumatism. Such cases are included under the head of cyst of the pancreas. They do not present true cysts, and are very amenable to treatment. (Medical News, June 10, 1893, p. 630.)

TUBERCULOUS PERITONITIS.—Laparotomy for. At the Clinical Society on November 11, 1892, Mr. Lawford Knaggs (Leeds) described the appearances seen at an operation for ventral hernia five years and a half after laparotomy had been performed for tuberculous peritonitis. The case had been recorded in the *Clinical Society's Transactions*, vol. xxi., and at the first operation the intestines, mysentery, and parietal peri-

toneum were covered with myriads of pale pink, gelatinous-looking tubercles, as big as hemp seeds, thickly and universally distributed. The patient, who had grown into a strong and healthy young woman, reappeared in October, 1891, with an irreducible omental hernia at the site of the abdominal incision. This was successfully operated upon in November. The sac and contained omentum presented nothing unusual in appearance. The omentum that prolapsed through the hernial aperture during the operation was quite healthy. The parietal peritoneum inside the ring felt quite smooth to the finger, and a coil of small intestine, which could be well seen through the opening, was glossy and looked like perfectly healthy bowel. No signs of tubercle, nor any evidence of the tuberculous condition that had existed five years and a half before were detected.

Mr. Howard Marsh mentioned a case of pronounced abdominal tuberculosis, with distended superficial veins, and marked ascites, in which laparotomy was performed to relieve the distension. Within five days the patient was improving, and in two months she was well, the previous distension of the veins and of the abdomen itself having quite disappeared.

Mr. Bruce Clarke referred to another case in which laparotomy and irrigation were performed for peritoneal tuberculosis with speedy and complete recovery. Ovariotomy was performed upon the same patient eighteen months subsequently, and no trace of the original tubercle could then be found.

Mr. J. Langton made some observations on the occurrence of ventral hernia after laparotomy.

Dr. Glover described the case of a boy, aged 8 or 10, who had unmistakable tubercle of the peritoneum with great distension. He had a temperature of 103° F. for weeks, and became much emaciated. Dr. Goodhart, who also saw the case, thought he could feel a mass of tubercle *per rectum*. The boy had no rigour. He subsequently quite recovered, though the belly was not opened.

Dr. Goodhart said that the interest of Mr. Knagg's case seemed to lie in the fact that the peritoneum subsequently quite recovered, and resumed all its functions. Many years ago he had made a post-mortem examination for Dr. Habershon of a lady who had died of obscure brain symptoms. Dr. A. P. Stewart had attended her some thirty or forty years before for what he had considered to be tuberculous peritonitis. The necropsy revealed tuberculous meningitis, but the peritoneum had perfectly healed, though with adhesions and a few patches of caseated tubercle. Some cases, therefore, undoubtedly recovered without surgical interference.

Mr. Howard Marsh mentioned briefly another very bad case in which laparotomy was advised and declined, and the patient recovered.

Dr. Barlow said that the cases which did best after laparotomy were those in which there was a moderate amount of fluid, whilst the adhesions were not marked, and there were not great masses of caseous material. Such cases often recovered without operative treatment. The cases for which surgical interference was required were those without fluid but with tuberculous masses, whilst, unfortunately, the results of surgical treatment were in these very cases the least good. Where there was free fluid which could be drained off, the success was most marked. (British Medical Journal, November 19, 1892, p. 1109.)

Tuberculous Peritonitis.—Results of Operative Treatment in.

Lindner (*Deutsch-Ztschr. f. Clin.*, 1892, xxxiv., p. 448), Berlin, has investigated a series of 205 cases of this affection where the treatment was operative. The mortality was 7·5 per cent. from the operations done, death resulting in most cases from collapse due to a prolonged operation or the exhausted condition of the patient—in a few cases to peritonitis and sepsis. Lindner sought to learn if a simple laparotomy-cut with evacuation of the exudation can result in a complete cure in these cases. He found this extremely difficult on account of the great difference in the methods reported by different surgeons and lack of similarity for comparison. He concludes, however, that the most influential factor for recovery is the power for absorption of the peritoneum. By removal of the exudation, pressure is removed, and the function or absorption power of the peritoneum is increased. The best results are where there is a large amount of exudation. Next favourable are the encapsulated cases. The chances of recovery are proportionate to the extent of peritoneal surface still capable of performing its function of absorption.

Hartmann and Aldibert report 48 cases of tubercular peritonitis treated by laparotomy, with 46 cures and 2 deaths (4·16 per cent. mortality). Ten were well at the end of one year and three after three years. They consider that laparotomy is beneficial, but offer no satisfactory explanation. Complete removal of the tubercular fluid is considered important. Drainage, except in suppurative cases, is contraindicated, and is useless. (Boston Medical and Surgical Journal, May 4, 1893, p. 440.)

TYPHLITIS AND APPENDICITIS. — Differential Diagnosis of.

As the formation of a correct diagnosis between typhlitis and appendicitis is a matter of considerable practical moment, what are the signs on which such a distinction can be based? It is

always a difficult matter to draw clear and early distinctions between two diseases which have up to a certain stage a considerable resemblance to each other; but when, as in the conditions under consideration, we remember that the cæcum and appendix are situated in the same region and that a certain amount of localised peritonitis is common as an early symptom when inflammation spreads from the interior of either, the difficulty of accurately determining the starting-point of the disease is considerably increased. It is only by knowing certain points on which careful inquiry should be made and by a judicious weighing of the evidence derived from an examination of the patient that we can come to any conclusion. The points for careful inquiry are as follows:—(1) The onset of the disease. In typhlitis this is less sudden and less marked than, at any rate, in many cases of appendicitis. (2) Pain in typhlitis is less severe and more confined to the region of the cæcum; it is not so diffused over the abdomen nor does it tend to radiate to distant parts. (3) Tenderness in typhlitis is more local, but there is not any one spot where *excessive* tenderness can be elicited by digital pressure, as can be done in the early stages of appendicitis at McBurney's spot. (4) The swelling in typhlitis appears early; it is larger, less fixed, more doughy and more easily felt than in appendicitis. It cannot be felt from the rectum. (5) The febrile disturbance as indicated by the temperature and pulse is less in typhlitis than in appendicitis. (6) The progress of the case. In typhlitis many cases soon tend to get well. In appendicitis, while undoubtedly some recover under general treatment, many others steadily increase in severity until pus is formed, while others relapse. (7) A previous history of many attacks would rather favour a diagnosis of typhlitis, especially if a reliable history could be obtained of these being accompanied by swelling in the right iliac fossa. Recurrent attacks of appendicitis may occur without there being any evidence of tumour, and there is moreover a tendency in many cases for these attacks to terminate in suppuration or perforation. Dr. Weir records the examination of thirty cases of acute perforative appendicitis following recurrent attacks and the explosion into abscess or general peritonitis occurred in twenty-two before the third attack and only once after the fifth. (8) A previous history of constipation is suggestive of typhlitis. But there is considerable difficulty in coming to a satisfactory diagnosis. (W. F. Haslam, Esq., Lancet, Dec. 31, 1892, p. 1484.)

TYPHLITIS, RELAPSING.—Question of Operation in. The circumstances which would justify an operation in these cases must be precisely defined, and it cannot be too emphatically stated that, in a fair proportion of instances in which the

trouble has relapsed, no surgical interference is called for. I am aware of many cases in which a patient has had three or more attacks of typhlitis, and has then ceased to be troubled with any further outbreaks. In some examples of the relapsing form much can be done by medical means, by diet, by attention to the bowels, and by placing the patient under conditions more favourable to a state of peace within the abdomen. The operation alluded to consists, it is needless to say, in the removal of the offending organ—the appendix. I first proposed this operation, which should be carried out during a quiescent period, in 1877, in a paper read before the Royal Medical and Chirurgical Society. Since that date the procedure has been performed in a great number of cases, and not always, I would venture to think, with proper discrimination. The following are the more important circumstances which would justify an operation, and in all the cases with which I have dealt one or other of the subjoined conditions has been present. (1) The attacks have been very numerous, as in a case in which there had been nineteen relapses. (2) The attacks are increasing in frequency and severity. (3) The last attack has been so severe as to place the patient's life in considerable danger. (4) The constant relapses have reduced the patient to the condition of a chronic invalid, and have rendered him unfit to follow any occupation. (5) Owing to the persistence of certain local symptoms during the quiescent period there is a probability that a collection of pus exists in or about the appendix. I have never operated in any case in which I have not been able to make out the enlarged appendix still in evidence after the acute symptoms have passed away. It may be safe to argue that the pain and distress involved by the operation will be less than that attending any but a slight attack, and that the risk of the procedure is less than that associated with an outbreak of typhlitis considered generally. In none of the cases in which I have removed the appendix during a quiescent period for relapsing typhlitis has the patient done other than make a sound recovery. (Mr. Treves, p. 310, British Medical Journal, April 22, 1893, p. 836.)

WHITE PATCHES IN THE MOUTH: SYPHILIS AND SMOKING.

Erb (*Münch. med. Woch.*, October 18, 1892) discusses the relation of these white patches (leucoma, &c.) which he calls *Plaquesnarben*, owing to their frequent connection with mucous plaques. When investigating the relation of syphilis to locomotor ataxy, the author collected 240 such cases, only two of which occurred in women. In 154 of the 240 the patches were present at the angles of the mouth alone, and in 204 in other parts of the mouth as well as at the angles, whereas in only 9

cases were they seen on the tongue alone. Syphilis was known to have occurred in 191 of the 240 cases. Of the remaining 49, 21 could not certainly be said never to have had syphilis, 8 had scars on the tibiæ and other signs, though they denied syphilis, and 6 had either spinal myosis or tabes dorsalis. Thus, in four-fifths of the cases syphilis was present, and in 4 or 5 the patches disappeared under anti-syphilitic treatment. In one-tenth to one-fifth of these cases there was no history of syphilis. In regard to smoking, only 148 cases were investigated, 47 of which occurred in slight or non-smokers, and 101 in moderate or heavy smokers. Of the same 148 cases, 100 had had syphilis, 64 being heavy smokers, and 36 slight or non-smokers. Of the remaining 48 non-syphilitic cases, 11 were slight or non-smokers, but 5 of the 11 were doubtful in regard to syphilis. In the 148 cases syphilis was present alone in 36, smoking alone in 37, syphilis and smoking together in 64, and neither one nor the other in 11. Erb concludes (1) that syphilis and smoking respectively may produce these patches about equally; (2) that generally both factors are present; (3) that the patches are very rare if both be absent; (4) that smoking alone can produce them if in great excess, and especially strong cigars; and (5) that in the presence of syphilis a much less degree of smoking suffices. The author is also inclined to admit a predisposition in the mucous membrane. If these patches occur in slight or non-smokers, and no other cause exist, syphilis is nearly certain to be present. In moderate smokers a suspicion of syphilis raised by other symptoms is strengthened, and treatment should be adopted. In the case of heavy smokers much caution is needed in drawing conclusions. (Epitome of the British Medical Journal, December 3, 1892, p. 90.)

AFFECTIONS OF URINARY AND GENERATIVE SYSTEMS.

ANURIA.—Operative Treatment of.

The cases of anuria which the surgeon is likely to be called upon to treat may be grouped under two heads: mechanical anuria and reflex anuria. (1) Mechanical anuria occurs after nephrectomy, or after destruction by disease of one kidney; by the impaction in the ureter of the remaining kidney of a calculus, bloodclot, or mass of muco-pus; by a growth in the bladder blocking the urethral orifice; from kinking of the ureter of a movable kidney; or by the pressure on the ureter of some tumour, or the cicatrisation following pelvic abscess or pelvic cellulitis. (2) Reflex anuria, as one of the complications of urethral or urinary fever, has often been attributed to mechanical

irritation of the urethra in front of the prostate. Opinions are at variance as to this view; but, since the introduction of renal surgery, it has been proved that a mechanical irritation in one kidney is a cause of total suppression in both. Thus, after a calculus has been extracted from the right kidney and a fistula has followed, complete suppression of urine due to a calculus in the left kidney has been relieved by extracting the left renal calculus, as shown by the escape of urine through the left side wound and through the right-sided fistula. James Israel has recorded the case of a man, aged 49, who for years had suffered from gout and right renal colic, and who at length was seized with left renal colic attended with total suppression of urine, and caused by two stones impacted, the one in the renal pelvis and orifice of the ureter, and the other in the ureter a little lower down. As soon as these calculi were removed through a left lumbar incision both kidneys at once resumed their function, as was proved by the qualitative analyses of the urine passed through the bladder and through the left lumbar wound. To save life in such cases of anuria it is necessary to perform nephrotomy on the remaining or last obstructed kidney, and it is to be hoped that surgical opinion, aided by those distinguished physicians who from the first have recognised the beneficial effects of surgery in certain classes of renal affections, will soon cause the operation to be generally acknowledged by the profession as the proper treatment. (Mr. Henry Morris, The Lancet, June 17, 1893, p. 1433.)

BRIGHT'S DISEASE.—Influence of Diet in Chronic Forms of.

At the Royal Medical and Chirurgical Society, on April 25, 1893 Dr. Hale White read a communication on the "Influence of Various Diets upon the Composition of the Urine and the General Condition of Patients suffering from Chronic Bright's Disease." He first referred to the opinions of many authors, and pointed out that they were by no means unanimous as to the best diet for patients with chronic Bright's disease. He next showed that all the *a priori* reasons which had been urged in favour of milk or any other particular diet were fallacious, and that consequently the only way to attack the problem was to carefully observe the condition of the urine and the condition of the patient upon different diets. It was very necessary not to draw deductions from too few cases; he had, therefore, taken ten cases of chronic Bright's disease, in which the urine had been carefully analysed every day for many weeks, so that altogether between four and five hundred analyses of it were made. In each case notes were kept also of the general condition of the patient. The following diets were tried: Milk,

three pints a day, containing 1,076 grains of proteid; farinaceous, consisting of bread and milk, containing 1,137 grains of proteid; full diet, consisting of bread, butter, milk, meat, rice pudding, and containing 1,522 grains of proteid; and sometimes the effect of adding fish, eggs, or more meat was tried. The following results were reached: 1. Quantity of urine. Usually more urine was secreted upon farinaceous or milk diets than upon full diet. 2. Specific gravity. The diet had no certain influence on this, but on the whole it was lower on milk and farinaceous diets than on full diet. 3. The quantity of albumen passed. The figures showed that nearly always the albumen passed was more upon milk diet than upon farinaceous and less upon full diet than upon either milk or farinaceous diet. Even in the rare instances in which the maximum quantity was passed upon full diet, the excess of proteid in the full diet more than compensated for any extra loss of albumen, so that patients always best avoided loss of albumen by a full diet. 4. The quantity of urea passed. The influence of diet upon this was most uncertain; often less urea was passed upon full diet than upon farinaceous, and less upon farinaceous than upon milk. Sometimes the reverse was true. 5. General condition of the patient. The cases distinctly showed that full diet was not more liable to lead to uræmia than any other; in fact, in one patient full diet appeared to ward off uræmia, and the patient ultimately recovered. The patients always felt and seemed much better and stronger on full diet, or on farinaceous diet with meat or eggs added, than on milk or farinaceous diet only. Many patients loathed milk diet, and greatly disliked farinaceous diet; on the other hand, they relished full diet. Dr. Hale White, therefore, advised full diet, for it did not lead to uræmia, nor was it harmful in any way, but it saved albumen, and the patients liked it and improved on it in all respects, whilst they greatly disliked other diets. If the diuretic effect of milk was desired, plenty of water should be drunk.

Sir Richard Quain was much pleased to hear a voice raised against the indiscriminate use of milk in cases of chronic Bright's disease. He proceeded to relate a case to show how all-important was the question of diet in instances of albuminous urine. An emaciated boy, aged seven, was brought to him, and on physical examination he could detect nothing, though the urine was loaded with sugar and albumen. The patient had been troubled with confined bowels, for which "plenty of sugar and brown bread" had been prescribed. The boy had lived on this food for some time, and a careful regulation of his diet brought about a speedy convalescence. He was consulted by the same patient when aged sixteen, when he found the abdomen enormously swollen, and the urine solid

with albumen, because he had been living almost exclusively on pastry. Shortly afterwards he fell and fractured his skull, and under the simple diet then enforced the albumen entirely disappeared, and he was at the present time in the enjoyment of good health. He regarded mercury as one of the most valuable remedies in certain cases of albuminous urine. He mentioned the instance of a man who accidentally contracted a syphilitic induration, and who took enormous doses of mercury without doing his albuminuria any harm. In another case of albuminuria, caused by catching cold whilst bathing during menstruation, one grain of calomel in the form of Plummer's pill was taken every night for a year with an excellent result, though the patient died ten years afterwards from double pneumonia.

Dr. Maguire said that the amount of albumen passed was only of importance in a relative manner, as indicating other lesions present; a large amount of albuminuria might be present, and be consistent with the preservation of health. He asked Dr. Hale White to supplement his paper by adding in what way the patients who were improved felt better, especially noting the condition of the circulation. He held that the diet should be modified in the different stages of granular kidney, and he thought that full diet was a great mistake for a patient in the early stage when there was a full pulse and labouring heart, but later, when the heart was giving out, a full diet used with judgment might be of benefit.

Dr. Broadbent said that he had never attached importance to the amount of albumen except as indicative of other conditions. The general treatment should be guided by observation of the pulse tension and of the condition of the heart. He believed that uræmic symptoms were simply a question of balance of circulation. When the peripheral resistance overmastered the cardiac contraction, and stasis occurred in the cerebral capillaries, then uræmic symptoms showed themselves. The remedy for threatening uræmia was not starvation on a milk diet, but to diminish peripheral resistance and increase cardiac action, and a liberal diet was of the greatest importance. His experience bore out the value of mercury, which increased intestinal and hepatic elimination, and its effect on arterial tension was more marked than that of more violent purges. (The Lancet, September 29, 1893, p. 999.)

ENLARGED PROSTATE.—Treatment.

(1) A purely expectant treatment is proper only in those in which enlargement has produced no symptoms, and catheterism is easy and shows no residual urine. Such cases would include chiefly those in which the prostatic condition is recognised during

a rectal examination instituted for other purposes. They are not infrequent. They often occur in comparatively young men. (2) As regards medical treatment: Ergot is the only drug which offers any prospect of usefulness, and it must be admitted, first, that it is indicated in only a small proportion of cases, and, next, that it is far from demonstrated that it has any distinct effect even then. (3) Palliative treatment consists (*a*) in the systematic use of steel sounds for purposes of dilatation; or (*b*) in the employment of the catheter, and is of the greatest value in a very large number of cases. (*a*) *Dilatation.* A patient who presents the symptoms of the prostato-vesical congestion of the early stages of hypertrophy, who is disturbed once or twice at night, who has an enlargement of moderate density, appreciable through the rectum, but not offering much resistance to the introduction of an ordinary catheter, and who has but little residual urine, is likely to derive great benefit from the systematic introduction of full-sized steel sounds. (*b*) *Catheterism* should be systematically employed in cases in which the quantity of residual urine is 3 or 4 ounces or more, and in which the introduction of the instrument is easy and painless, and the urine is sterile. The frequency should be proportionate to the amount and character of the residual urine. The objections to habitual catheterism in prostatics are (1) The risk of vesical infection; (2) the production of vesical atony. (1) In what cases should some operative procedure be recommended? It may be said at once that in those patients with but moderate obstruction, or with a high grade of compensatory hypertrophy of the bladder, with a small amount of residual urine which remains sterile, and in whom catheterism is easy and painless, operation is not to be thought of. The time may come when, by perfecting our methods of diagnosis and our operative *technique*, this class of prostatics may be benefitted by active surgical interference, but it has not yet arrived. Dilatation and catheterism, as above described, at present represent the best therapeutics, and, if the rigid observance of details of antisepsis is never lost sight of, will in a fair proportion of instances see the patient comfortably through his life. But it must be said with equal positiveness that in the great majority of cases it is at the termination of this stage, when the approaching "breakdown" in catheter life first begins to manifest itself, when instrumentation becomes more difficult, more painful, or more frequent, when the urine shows fermentative change and the vesical congestion merges into a true cystitis, that the most valuable time is lost to both patient and surgeon. It is just then, that, on the one hand, operation is for the first time clearly indicated and justified, and, on the other, that it promises most. In the absence of evidence of advanced and threatening renal disease of an infective character, but few

prostatics, no matter how marked their local symptoms, should at the present day be denied the chance of relief afforded by operation. In this statement are included not only the cases with pronounced vesical asepsis, but also those with atony; with more or less complete retention; with general sclerosis, rigid vessels, polyuria and hyaline casts; with even the toxæmia above alluded to. The evidence already presented to the profession seems to warrant this opinion, in spite of the unfavourable views as to operative interference formed and expressed by such excellent and experienced observers as Socin, Guyon, and Sir Henry Thompson. As to the choice of operation, we are limited to the following methods, which are mentioned in the order of their gravity, as estimated by their probable risk, or by their mortality as determined by existing statistics, (1) overstretching of the prostatic urethra, (2) perineal prostatotomy, (3) perineal prostatectomy, (4) suprapubic prostatectomy, which is the operation to be preferred in all those cases in which, palliative treatment having failed, there are unmistakable indications that the local conditions are growing worse, the general health remaining as yet unaffected. The best possible period is that before the development of marked and continuous cystitis, while some power still remains in the vesical walls, and the bladder is neither thinned and dilated, nor rigid and contracted. Under these circumstances, in the presence of a patient who reports that he is disturbed at night with increasing frequency, that he is obliged to use the catheter oftener, and not only does so with greater discomforts but with less relief in the interval, that the urine is occasionally turbid and offensive, that he has recently had one or more attacks of complete retention, and that he is beginning to lose flesh and appetite, the indications for operative interferences are unmistakable, and the suprapubic method is obviously the one to be selected. (Prof. J. William White, British Medical Journal, September 9, 1893, p. 576.)

GONORRHŒA.—Treatment.

Christian (*Therap. Gaz.*, March, 1893), compares the results obtained by two methods of treatment of gonorrhœa, with regard to the appearance of complications such as posterior urethritis and epididymitis. The first 150 cases were treated during the first week by restricted diet, with alkaline diuretics. If the disease had reached the stationary stage injections of some sort were ordered (silver nitrate 1 to 3,000, or hydrastis and bismuth). At the same time balsamic drugs were given internally. In the subsiding period stronger injections containing lead or zinc were given. A second series of 150 were treated on quite a different principle. Balsams were given from the commencement and for three or four weeks. No injections

were allowed till the affection was subsiding, namely, at the end of the third week. Result of the first 150 : cure uncomplicated 85, posterior urethritis occurring in 52, epididymitis in 13. Of the second 150 : uncomplicated cure 134, posterior urethritis in 12, epididymitis in 4. (Epitome of the British Medical Journal, June 10, 1893, p. 92.)

MOVABLE KIDNEY.

Movable kidney is of much greater frequency in the human female than is generally supposed. Of a series of 500 women examined by the author, 90 were found the possessors, amongst other things, of movable kidneys. The affection *appears* to be comparatively rare among men. In the overwhelming majority of cases the right kidney alone is movable. Not every movable kidney produces symptoms. The symptoms of movable kidney frequently both coexist with and simulate those of various diseases of the female sexual organs. The discriminating diagnosis may offer difficulties. Atrophy or absorption of the peri-renal fat is the chief etiological factor in the production of movable kidney. Other causes assigned by various authors are : tight-lacing, laxity of abdominal walls, congenital predisposition, and severe straining. A distinction should be maintained between movable and floating kidney. A movable kidney is one movable within a pouch or hollow formed within its own fatty capsule. A floating kidney has normal relations with that portion of its fatty capsule which it carries with it in its excursions, and is supplied with a mesonephron, the length of which determines the degree of mobility. This paper deals only with the movable kidney. The symptoms are likely to be more distressing in the earlier than in the final stages of movable kidney. The most characteristic combination of symptoms of uncomplicated movable kidney is the following :—Digestive disturbances, chronic in character ; epigastric pain, usually located somewhat to the left of the median line ; general nervousness ; cardiac palpitation ; inability to feel comfortable, or to sleep, when lying on the left side. The other symptoms associated with movable kidney occur less frequently and are of secondary significance. The symptoms of movable kidney are accentuated during menstruation and the early months of pregnancy. They disappear during the latter half of pregnancy and during the existence of large intra-abdominal growths. The symptoms of movable kidney are due to pressure and traction upon, stretching, and irritation of various parts of the solar plexus of the sympathetic and of its branches. The theory of obliteration of the lumen of the duodenum, by pressure or traction, is insufficient to account for the symptoms. A movable kidney is the easiest of all intra-

abdominal conditions to diagnosticate. The diagnosis is made by palpation of the displaced organ. A kidney once movable never again becomes firmly fastened in its normal position except by operative interference. The symptoms due to movable kidney may be ameliorated by the dorsal decubitus, the Weir Mitchell treatment, massage, electricity, and abdominal supporters. All of these measures are, however, in the large majority of cases disappointing, and the benefit obtained, if any, is likely to prove only transient. Nephrectomy, or extirpation of the movable kidney, is too radical and dangerous a resource as compared with nephrorrhaphy. Nephrorrhaphy *properly* performed upon properly selected cases can be depended upon to afford relief, with a good prospect of the permanency of the latter. (Dr. Edebohls, American Journal of the Medical Sciences, April, 1893, p. 429.)

[See also article by Dr. Edebohls, "On Nephrorrhaphy for Movable Kidney," at p. 348 of this volume of the *Retrospect.*]

OXALURIA.

[Dr. Adler, of New York, appends the following conclusions to an important paper on this subject:] (1) Oxalic acid is a normal, though possibly not a constant, constituent of the urine. (2) The amount present in a given quantity of urine can be determined with any degree of reliability only by quantitative analysis. All approximations by means of microscopic examination are untrustworthy. (3) The chief source of oxalic acid in the urine is the oxalic acid contained in the food, though it is probable that minute quantities are produced in the course of normal metabolism. Further investigation will have to demonstrate if, and under what conditions, morbid metabolism affects the production of oxalic acid. (4) Impeded respiration, diseases of the heart and lungs, do not of themselves tend to produce an excess of oxalic acid in the urine. (5) The establishment of pathological oxaluria as a type of disease *sui generis* is not warranted by the facts at present at our command. (6) The nerve symptoms assumed as characteristic of pathological oxaluria are not caused by an excess of oxalic acid in the blood and in the urine. Analysis will show that such excess is by no means as frequent as has often been assumed. (7) Where such excess does occur, not to be accounted for by ingesta, it is probably one of several symptoms of metabolic alterations primarily caused by disturbances of the nervous or digestive organs, or both, but no factor in the causation of disease. (8) In considering the excretion of oxalic acid in the urine it is of the utmost importance to take into account at the same time the excretion of the other principal constituents, particularly urea and uric acid. (New York Medical Record, June 3, 1893, p. 677.)

PROSTATECTOMY, SUPRAPUBIC.

Suprapubic prostatectomy should never be undertaken at the outset of catheter life unless regular catheterism is impossible. The operation should never be undertaken as long as the ordinary catheter life is a tolerable one. If, from any of the causes I have detailed, catheter life becomes intolerable, suprapubic cystotomy should be resorted to. By means of this proceeding the bladder can be thoroughly explored, and any stone removed, which in these cases may easily have escaped detection by the more usual methods of examination. The intravesical growth, if it is found to exist, and of this existence we can never be sure until the finger is in the bladder, can be fully examined, and removed if the operator thinks right to do so. If he deems removal inadvisable, or if there is nothing which can be removed, he can leave the patient with a suprapubic tube, for permanent after-wear, with the certainty that he will have materially improved the condition of the patient. Should the operator decide to remove the prostatic obstruction, there is a very good prospect, but not a certainty, of the power of natural micturition being restored to the patient. (Mr. Buxton Browne, British Medical Journal, March 11, 1893, p. 516.)

SCARLATINAL NEPHRITIS.—Diuretin in.

Demme (*Journal de Médecin de Paris*, 1892, No. 20, p. 241) states that diuretin is contra-indicated in infants under one year of age, with whom its administration is often followed by irritation of the gastro-intestinal mucous membrane. To older children, two to five years, he gives 7 to 22 grains daily, increasing this to 45 grains in children from six to ten years old. He has employed this drug in 11 cases: in 4 of which there was anasarca; in 3, mitral insufficiency, with insufficient diuresis, despite the restoration of compensation by digitalis; in 2, chronic peritonitis with ascites; and in 2, pleurisy with effusion. Diuretin he finds to be an efficient diuretic, acting directly upon the epithelium of the kidney. It is still impossible to pronounce upon its influence over the circulation, but it seems to be of little moment. In scarlatinal nephritis it is very energetic, the ascites disappearing more rapidly than under the action of any other diuretic. It is important, however, to prescribe it only after the end of the first stage of the inflammation. The anasarca and ascites following upon mitral lesions should be at first treated by digitalis until compensation has been secured, and then submitted to diuretin. Under these conditions all dropsy rapidly disappears. (American Journal of the Medical Sciences, April, 1893, p. 481.)

SPERMATIC CORD, ACUTE TORSION OF.—Reduction; Immediate Relief.

Since I first reported in the *British Medical Journal* of June 6, 1891, a case of strangulation of the epididymis due to torsion of the spermatic cord, operated on at the South Devon Hospital, Plymouth, by Mr. Whipple, there have been three cases reported—one by Mr. Bryant, in a paper read at the Royal Medical and Chirurgical Society on February 23, 1892; the second by Mr. Davies-Colley in the *British Medical Journal* of April 16, 1892; and the third by Mr. Herbert Page in the *Lancet* of July 30, 1892. I have now to record a fifth case, which in onset of symptoms resembles the others but in treatment differs, as it was relieved without operation. On March 17, 1893, a schoolboy, aged 19, in perfect health, at 3 p.m. jumped a form, from 3 p.m. till 5.30 p.m. was boxing at intervals, at 6 p.m. had tea, and at 6.30 began to feel seedy. At 6.45 p.m. he went to bed, and then first felt a pain in his right testicle. At 7.30 p.m. he vomited, and at 7.45 I saw him. He was then pale and faint, and complained of pain in his right testicle, extending along the spermatic cord. The testicle and epididymis were very tender and somewhat swollen, especially the latter. On tracing up the swollen cord from the epididymis, about one inch above the top of the testis I found a very tender lump about the size of a cobnut. Above this the cord was not altered in any way. The external abdominal ring was not unduly patent. The epididymis lay in front of the body of the testis; there was no urethral discharge. The fact that the epididymis was in front of the body of the testis, that the testis and epididymis were swollen and tender, that there was a distinct lump or knot involving the cord, above which the cord was normal, and below which there was swelling, made me believe that the cord was twisted. I therefore decided to attempt to untwist it. I rotated the epididymis in front of the testis to the patient's left, but it caused more pain and would not stay in that position. I next rotated it to the patient's right so that it resumed its normal position behind the body of the testis. It remained so, and the lad at once said that all pain had gone. In two minutes the swelling of the testis and epididymis had gone, and in half an hour nothing remained of the trouble except some hardness and swelling of the cord at the point of twisting. All faintness and pallor had passed off. Next morning there was no trace of anything unusual. *Remarks.*—In all the five cases mentioned the patients were young, their ages being 14, 15, 16, 17, and 19. In my two cases the immediate cause appears to have been a strain, but in the other three no cause is mentioned. In the first three cases the testicle was imperfectly descended, and in Mr. Page's case there was an

inguinal hernia. In the present case the testicle was in its proper place, and there was no undue patency of the external abdominal ring. In all of the cases the symptoms were much the same, namely, the appearance of a painful swelling in the groin and vomiting. In the first four cases the nature of the swelling was only discovered on performing an exploratory operation. In all the cases the epididymis had been more swollen than the testis, and in my first case the testis, to the naked eye, appeared normal. I have no doubt that, if the nature of the present case had not been recognised, the testis and epididymis would have continued to swell and necessitated an operation. (Mr. Gifford Nash, F.R.C.S., British Medical Journal, April 8, 1893, p. 742.)

SUPRAPUBIC CYSTOTOMY IN TWO STAGES.

The modification of the operation that I propose is based on the familiar surgical fact that granulating surfaces furnish an almost absolute protection against infection. The first operation is performed under the influence of an anæsthetic. The rectum and bladder are distended in the usual manner. The field of operation is rendered aseptic, and the bladder is exposed freely, by dissecting away the prevesical fat over an oval surface about two inches in length and half as wide. After arresting the hemorrhage the wound is firmly packed with iodoform-gauze. The external dressing should be securely fastened by strips of adhesive plaster, which are made to encircle the pelvis and which prevent the dressing from becoming displaced. At the end of five days the dressing and iodoform-gauze are removed, and the bladder is distended and incised without the use of an anæsthetic, if it is intended to simply establish a suprapubic fistula, or if a small stone is to be removed. More serious intra-vesical operations would require the use of an anæsthetic. If the wound has remained aseptic it will now be found covered throughout by a layer of active granulations. These granulations have closed the connective-tissue channels, and have shut out from the wound the balance of the prevesical space. If no anæsthetic is used the surface of the wound is brushed over with a 5 per cent. solution of cocaine five minutes before the operation. The bladder and rectum are distended in order to render the anterior wall of the bladder more accessible. The bladder is incised and drained in the usual manner. The septic urine is harmless to the granulations, and thus the dangers of the operation are minimized. (Prof. N. Senn, Medical News, July 1, 1893, p. 8.)

TUMOURS OF BLADDER.—Results of Operation for.

I have operated thirty-two times with a definite object of removing tumours of the bladder which I had diagnosed as being

present. My first case proved a mistaken diagnosis, for the tumour was merely a small papillomatous-like tag coexisting with tuberculous disease. In another, a female case, I deemed it best to leave the tumour alone, but, probably with my increased experience and better methods of removal, I should not again hesitate to dissect a similar growth away. It proved to be a very dense epitheliomatous ulcer. On thirty occasions I have removed tumours. The perineal operation was performed three times, because the growth was near the urethral orifice, the female urethra was dilated in eight instances, and the suprapubic route was chosen nineteen times. I regret to have to chronicle two deaths as the direct result of the operation. Both patients were males, both were the subject of a small but pure villous papilloma. The operation was easy in both cases, but both cases died of suppression. Unknown to me, both had had epidemic influenza three or four days before I operated. (Mr. Hurry Fenwick, British Medical Journal, June 10, 1893, p. 1211.)

[See also article by E. Hurry Fenwick, Esq., on "Tumours of the Bladder and their Treatment," at p. 342 of this volume of the *Retrospect.*]

GENERAL SURGERY, AND AFFECTIONS OF THE BONES, JOINTS, &c.

CEREBRAL SURGERY.—New Method of Entering the Skull in.

Having frequently made use of another method of entering the skull for extensive operations, I have no hesitation in recommending it to facilitate the removal of brain tumours. I refer to the method suggested by Wagner. It consists essentially in cutting through the skull with the chisel in the line of the scalp incision, the scalp flap not having been turned back. This bone flap with scalp flap still attached is then pried up and turned back, thus exposing as large an area of dura mater as the original incision outlined. The method is practically applied as follows :—The horseshoe-shaped scalp incision having been made and all vessels caught and tied, the cut is deepened through the pericranium in the same line, so that this tissue may not be injured when working on the bone. At the centre of the convexity of the incision, the pericranium is turned back far enough to permit of the application of a half-inch trephine. This small button of bone is removed to allow of the subsequent use of the elevator. Starting from this trephine opening with a very small gouge, a shallow groove is cut following the line of

incision in scalp and pericranium. Cutting this groove prevents subsequent splintering of the surface. Then with a sharp osteotome held nearly parallel with the surface of the skull, it is not difficult with the mallet to cut through the skull without injuring the dura mater, until, introducing an elevator into the trephine opening, the whole plate of bone can be pried up, the uncut portion of its circumference readily breaking. The whole plate of bone has the pericranium and scalp flap attached, and opposite the line of fracture, even, the pericranium remains untorn. Slowly lifting the bony plate and feeling beneath it to make sure that vessels or adhesions are not rudely torn, the entire mass can be turned back and the dura exposed. If localisation has been fairly correct it will not now be necessary to enlarge the opening. Hemorrhage from the bone may be, as it was in one of the cases reported, excessive; usually, it will cease after short pressure; if not, the larger vessels should be plugged either with gauze or bits of sponge or catgut. Hemorrhage from the surface of the dura is usually slight, and can be most rapidly stopped with a light touch of the Paquelin cautery, or, if one prefers, a fine curved needle threaded with catgut may be passed under the bleeding-point and the vessel tied. (Dr. Charles McBurney, American Journal of the Medical Sciences, April, 1893, p. 365.)

ENDOCARDITIS GONORRHOICA.

Leyden (*Deut. med. Woch.*, September 21, 1893) relates the following case in a man, aged 22. In April he had swelling of one knee and both ankle-joints, and when admitted a month later, the knee and left ankle-joints were still swollen. The clinical picture was characterised by (1) the presence of aortic and mitral disease; (2) irregular temperature with rigors: (3) repeated vomiting; (4) the development of acute nephritis; and (5) the malignant course of the disease. The patient died in three weeks' time. One of the aortic cusps was destroyed by ulceration, and covered with vegetations. There was a large mass of vegetations on one of the mitral cusps. There was only one breaking down infarct, and that in the spleen. The kidneys were swollen, hyperæmic, and contained microscopic foci of softening. The myocardium also contained similar foci. From the literature of the subject here detailed, it appears that (1) the relation of gonorrhœa to endocarditis is established; (2) a portion of such cases have a chronic course, and some even tend to recover; and (3) others have a malignant course. The bacteriological problem in gonorrhœal endocarditis has hitherto been unsolved. Some investigations have shown that the streptococcus was present in the valves, but generally they have been inconclusive. This case thus provided the opportunity of

settling the question of the pathogeny of this endocarditis. The blood examined during life gave negative results, as also that taken from the auricle after death. The fibrinous deposits were examined bacteriologically by Michaelis. Gonococci were demonstrated (1) by their shape ; (2) by their presence within the cells ; and (3) by the facts that they were decolourised by Gram's method, and very easily by alcohol and lavender oil. No other micro-organisms were found. That no cultivation experiments were made is not looked upon by the author as any real objection, as the above-named characteristics are sufficient. Although the settling down of the gonococci upon the endocardium is remarkable, it is not very surprising as blood serum is a medium well suited to these micro-organisms. (Epitome of the British Medical Journal, October 28, 1893, p. 69.)

ERYSIPELAS INOCULATION IN THE TREATMENT OF MALIGNANT TUMOURS.

In an extremely interesting and important communication, Dr. William B. Coley, of the New York Hospital for the Ruptured and Crippled, reports 10 original cases of malignant disease (sarcoma 6, carcinoma 4) in which repeated inoculations of cultivations of *streptococcus erysipelatis* were made. The growths were all recurrent and unsuitable for operation. In the course of his paper Dr. Coley says : In addition to these cases of my own, I have collected and tabulated all the reported cases of carcinoma and sarcoma in which erysipelas, either spontaneous or artificial, intervened. It is upon a careful study and analysis of these cases, as well as upon the more practical experience derived from my own cases, that my conclusions are based. We find a total of 38 cases of malignant disease in which an erysipelas has occurred, either by accident or intent. Of these 38 cases the erysipelas occurred accidentally in 23 cases, and was the result of inoculation in 15 cases (including my own) ; 17 cases were carcinoma, 17 cases were sarcoma, 4 either sarcoma or carcinoma. The immediate and final results were as follows: *Carcinoma*—Of the 17 cases, 3 were permanently cured. In addition, 1 case of probable carcinoma (Hutchinson's) was well five years after the attack of erysipelas. Of the remaining 13, 10 showed improvement, which, although temporary, undoubtedly added to the life of the patient in most cases. One case (Janike's) died, as a result of the erysipelas, on the fourth day. *Sarcoma* —In turning to sarcoma we find the curative action of the erysipelas even more marked. Of the 17 cases of sarcoma we find 7, or 41 per cent., well and free from recurrence from one to seven years after the attack of erysipelas. Nearly all of these 7 cases have a remarkable history. The cases of Dr. Bull, Dr. Gerster, and my own have already been described. The

remaining 4 were as follows: The first (Biedert's) was a very large round-celled sarcoma, involving mouth, face, nose, and orbit of a child ten years of age. The features were greatly distorted, and the general condition so bad that death from exhaustion was anticipated soon. While in daily expectation of being obliged to do a tracheotomy, a severe attack of facial erysipelas occurred. The tumour disappeared, as if by magic, during the course of the erysipelas. The child recovered, and at the end of a year was perfectly well, with no trace whatever of recurrence. The next case (Brun's) was a melanotic sarcoma of the breast, with entire disappearance, and no recurrence. The sixth case (Busch's) was a multiple sarcoma of the face that entirely disappeared after an attack of facial erysipelas, and did not return. The seventh case (Kleeblatt's) was a lympho-sarcoma of the neck, very large; the erysipelas in this case being the result of inoculation. In addition to these 7 cases there is one other, a probable sarcoma of the breast, that was cured. Ten of the remaining 11 showed more or less marked improvement; in some cases the tumour entirely disappearing, and not recurring for several months. One case died as a probable result of the erysipelas, which was in this instance accidental. To put the result still more briefly: In carcinoma, 17 cases, 3 cures, 17·6 per cent.; 1 death, 5·9 per cent. In sarcoma, 17 cases, 7 cures, 41 per cent.; 1 death, 5·9 per cent.; 4 sarcoma or carcinoma, 2 cured. These cases have been in no way selected, and I have made every effort to include all cases resting upon competent authority, yet it might be urged as an objection to accepting these figures as representing the true percentage of cures, that cases have probably occurred which, owing to no marked improvement following the erysipelas, naturally failed to be reported. This objection, though valid as far as the accidental cases are concerned, would cease to hold in the cases of inoculation for the reason that, being so few in number, all, or nearly all, have probably been reported. Grouping by themselves, then, the cases where the erysipelas was artificially produced, we find 7 cases of carcinoma, 1 cure, or 14·3 per cent., and 8 cases of sarcoma, 2 cures, 25 per cent. These cases were as follows: Fehleisen, 2; Kleeblatt, 2; Busch, 1; the remaining 3 cases being my own. These figures may then be taken to fairly represent the curative effect upon carcinoma and sarcoma in the worst cases; and when we reflect that in nearly every instance the tumour was not a primary growth, amenable to operative treatment, but either a recurrence after operation had been tried and failed, or from its nature inoperable, then and then only are we in a position to fully estimate the importance and value of erysipelas as a *curative* agent. (American Journal of the Medical Sciences, May, 1893, p. 498.)

FRACTURES OF THE CRANIAL VAULT.—Treatment.

A suspected simple fracture should be exposed by an incision of the scalp for purpose of examination. If a simple linear fracture be discovered, and there be no symptoms pointing to a complication, the wound may be closed. If with a linear fracture there be indications of meningeal hemorrhage, or of lesion of the brain substance, or if there be an open fissure, trephination should be made for further exploration. If the fracture be depressed, the bone should be elevated, even in the absence of complicating symptoms. The further incision of the dura, or invasion of the brain itself, concerns the management of complications and not the fracture *per se*, and is consequently foreign to our purpose. This series of rules, which I regard as aphorisms, are founded upon a belief in the necessity for the elevation of depressed bone under all circumstances—a necessity so urgent as to demand that the depression should be determined or disproved by any requisite operative means. It has fortunately become possible to institute these explorative measures without danger to the patient. The validity of the proposition that depressed bone should always be at once discovered and elevated or removed would seem to have been made convincingly clear in the history of numberless cases in which it has been neglected. It is not an occasional but a frequent instance in which, after the lapse of years, epilepsy, abscess, or mania has followed a cranial fracture, and in which a simple depression unrelieved, a cyst, or a spiculum of bone penetrating the brain, has been found to be the cause of an irremediable disease. If the occurrence of immediate danger is to limit responsibility, the surgeon may well allow his patient to drift, while he watches from day to day for the manifestation of primary symptoms, and in their absence for some brief time regard the cure complete. It is not even possible in a majority of cases to repair the evil consequences of such neglect by later operation ; the remedy lies in prevention, not in cure. The epileptic habit, or the maniacal condition, once firmly established, the final removal of its cause is too often but an ineffectual resort. If we consider, then, the serious morbid conditions which often follow a neglect to relieve the brain from bone pressure, and the absence of probable danger which it involves, there seems to be no good reason why fractures of the vault should not be subjected to as critical examination as other accessible injuries. (Dr. Phelps, New York Medical Journal, July 15, 1893, p. 62.)

FRACTURE OF THE PATELLA.—Treatment.

Three years ago, at the annual meeting of the Bellevue Hospital Alumni Association, I advocated wiring this fracture as the

treatment to be almost invariably adopted, excepting scarcely more than those cases in which organic visceral disease rendered any operative interference inadmissible. My later experience has been for recent fractures entirely corroborative of the statements made at that time. The essential contentions which I then made were: That the obstacle to union is usually the intervention of the anterior capsular fibres, which fall between the fragments and prevent osseous contact, even though close approximation be effected; that this obstacle cannot often be removed by any measure short of opening the joint; that this method is without danger; that its result is invariably osseous within less than half the time required for ligamentous union by other means; that restoration of the function of the joint can be made perfect by sufficient care in after-treatment; and that, when the surgeon possesses ordinary operative skill, it is an operation not of choice but of obligation. I had at that time operated in forty-two recorded cases. I had never lost a life or limb, had never had a drop of pus in the joint, had never failed of osseous union, and had never but once had any ultimately serious limitation of joint movement. Since then I have continued to treat this fracture in the same way with the same results, and have had no occasion to change my views. It will be unnecessary to recapitulate the steps of operation, which I have since modified in only one or two particulars. I have discarded the use of strong antiseptic solutions. I began with a bichloride-of-mercury irrigation of 1 to 5,000. I afterwards reduced its strength to 1 to 10,000, with some misgivings as to its safety. I now use a solution of 1 to 20,000 in boiled water. I find that by this avoidance of strong antiseptics the subsequent restoration of movement in the joint is much more easily accomplished. I continue the use of a single articular drainage-tube merely to afford an exit for post-operative hemorrhage. I have long since ceased to fear the occurrence of purulent synovitis. In the second stage of treatment, after union has become sufficiently firm to render manipulation safe, the same advantage is to be derived from systematic massage that has been noted in fracture near the extremity of a long bone. There is the same necessity also, if it is to afford the greatest possible advantage, that it should be applied by a professional person who possesses technical skill and experience. (Dr. Phelps, New York Medical Journal, July 15, 1893, p. 63.)

HIP-JOINT.—Bloodless Amputation at, by a New Method.

Professor Senn describes a new mode of procedure—a modification of the Fourneaux Jordan method—by which a very complete command of the divided vessels in both flaps is obtained.

spontaneous removal, is beyond the absorptive capacity of the tissues. (8) The hollow, perforated ivory or bone cylinder, devised by the author, answers the same mechanical purpose without the objections which have been charged against the solid cylinder. (9) The safest and most efficient means of direct fixation of oblique fractures is by a bone ferrule, which must be applied in such a manner that it surrounds both fragments. (10) Such a circular absorbable direct splint prevents to perfection lateral and longitudinal displacement (11) Rotation of the limb below, and angularity at the seat of fracture, must be prevented by a carefully applied circular plaster-of-Paris splint. (12) For fractures not requiring drainage, the entire wound should be closed by buried and superficial sutures, as the bone ferrule is removed by absorption. (13) In suppurating wounds the bone ferrule should not be removed until direct fixation has become superfluous by the formation of a sufficiently firm union between the fragments. (14) The external splint should be applied in such a manner that it does not require a change throughout the entire treatment, permitting at the same time access to the wound, should this become necessary. (15) Direct fixation of a fracture, combined with perfect immobilisation, brings the different anatomical structures of the broken bone permanently into their former normal relations, preparing the way for the early initiation and speedy consummation of an ideal process of repair, and the realisation of a perfect functional result. (16) Should future experience demonstrate that bone is not sufficiently absorbable, the same kind of ferrules can be made of partially decalcified bone or chromicised catgut. (Annals of Surgery, August, 1893, p. 150.)

POTT'S DISEASE.—Operative Treatment in.

From the statistics which I have consulted, I find the mortality from operations for Pott's disease to be about forty per cent. Schede operated on 8 cases, average age 10½ years, and 7 died. Horsley on 7, average age 25½, 1 died. Lane on 11, average age 12 years, 1 died. Macewan, 5 cases and 2 deaths. In Schede's eighth case there was no improvement. Horsley had 2 recoveries, 3 improved, 1 no improvement, and 1 death in 7 cases. Lane 6 cases cured, 2 improved, 2 unimproved after second operation, in 11 cases. Both of my cases from Pott's died ; 1 fracture recovered and could walk ; 1 old hemorrhage much improved ; 1 spinal meningitis cured. I have compiled all the cases published since Lloyd's paper, about 40 in number, and find the percentage varies but little from published reports. The most serious subject for surgical study is paralysis following Pott's disease. We know that nearly all cases of Pott's paralysis recover through proper treatment. Myer places it at 55 per

cent. ; Gibney 50 per cent. ; Taylor and Lovett at about 90 per cent. So far as my own observations go, I would say that at least 90 or 95 per cent. under proper treatment recover ; in fact I seldom see a case that does not, in the many scores that we treat annually at the Post Graduate and the University. We have, then, of this class of paralysed patients, only ten or less, in every hundred, incurable without operation. Then arises the question : what per cent. of these ten are suitable for operation with a reasonable hope of improvement? General statistics show a mortality of 40 per cent. In 36 cases by Schede, Horsley, Lane and Macewen there were eleven cures or about 30 per cent. ; 11 deaths directly traceable to the operation, or 30 per cent. ; leaving 40 per cent. uncured, or slightly improved, or died after many months. This is encouraging when we understand that all were hopeless cases. When shall we operate? How shall we determine the cases which can be benefited by operation ; The neurologist can be of great service to the surgeon in diagnosis. Paralysis is produced, I believe, from pressure, first, by bending of the spinal column from destruction of bone. Second : invasion of the canal by the tubercular process producing a large deposit of caseous matter and a meningitis, from invasion with deposit of inflammatory material. Sudden paralysis in Pott's is usually produced by bone pressure. Whereas, slow progressive paralysis is produced by tubercular abscesses invading the cord, or a pachy-meningitis, and growth of granulations with inflammatory deposit. The cases of sudden paralysis are more likely to give away under mechanical treatment ; whereas, the cases of long continued progressive paralysis are most likely to be intractable. I think a safe rule to follow in any case would be : treat the case mechanically for a time—say two months—and if the paralysis continued to increase, or if it had become total, operate. Cases with total paralysis, with incontinence either of urine or fæces of several months', or even weeks', duration, should be operated on if they do not immediately improve under treatment. Cases with well defined abscesses burrowing through the canal, with gradually increasing paralysis, should be operated on, the abscess scraped out, and good drainage established, and the spinal column examined. Operate in cases of pressure threatening the destruction of the cord. (Prof. Phelps, University of New York, Journal of Nervous and Mental Disease, July, 1893, p. 473)

SEPARATION OF THE LOWER EPIPHYSIS OF THE FEMUR.

In nearly all the recorded cases extreme direct violence has been the cause. The direction of the displacement probably partly

depends on the direction in which the violence has been applied, but also on the attachment or otherwise of the gastrocnemius tendon to the lower end of the upper fragment. The diagnosis of such an extensive injury might be thought to be devoid of any difficulty, and in the greater number of cases this cannot be considerable, since the shortening of from one to two inches, the projection of the lower end of the diaphysis in the popliteal space, the displacement of the epiphysis on to the front of the femur, and the interference with the circulation in the leg, when taken together with the cause of the injury and the age of the patient, form a group of symptoms pathognomonic of this form of fracture. The prognosis would seem to be extremely serious if we may judge from the reported cases, in many of which amputation had to be performed. The dangers, besides the usual ones consequent on so severe an injury, arise from the pressure of the lower end of the fractured shaft on the popliteal vessels, interfering seriously with the circulation in the leg, and either producing great œdema or gangrene, or leading to secondary hemorrhage. As regards treatment, reduction under an anæsthetic would seem to be the plan to try at first, and in case of difficulty reduction might be facilitated by the division of the tendo-Achilles ; after reduction, either the long splint, with weight and pulley, or the double inclined plane might be employed. Should reduction be impossible, then excision might be adopted ; but if the large vessels be ruptured, or gangrene occur, amputation can be the only resource. (Mr. Mayo Robson, Annals of Surgery, July, 1893, p. 5.)

SHOCK TREATED BY INFUSIONS OF NORMAL SALINE SOLUTION.

At the Clinical Society, on March 24, 1893, Mr. Mayo Robson described two cases in detail, and mentioned others in which he had found the infusion of several pints of normal saline solution into the circulation ward off impending death in cases of intense shock after operation. The cases specially described were one of enucleation of a large fibromyoma of the uterus, and another of amputation at the hip-joint in a young adult, for sarcoma of the upper part of the thigh. In neither case had there been any material loss of blood, but death was apparently imminent from shock. Both patients were saved by the means adopted. After quoting from several authorities to show the similarity in the symptoms of syncope and collapse, Mr. Robson pointed out that it had been clearly shown that shock was naturally due to paralysis of the heart and vasomotor paralysis of the abdominal vessels, the sudden dilatation of which might simulate sudden hemorrhage. He said in cases of shock without serious hemorrhage the blood was driven into the large abdominal

veins where, for the time being, it was useless, leaving the head and extremities in a state of anæmia. If by injecting several pints of blood fluid into the vessels the blood could be forced into circulation again the effect should be at once manifest by a filling of the vessels in the head and extremities, and although the blood would be diluted, the increased quantity, three to four pints, would be sufficient to fill the dilated and partially paralysed abdominal vessels, as well as the vessels supplying the parts essential to life ; the heart, moreover, would be likely to be stimulated by the blood being driven into it. The case he had related seemed to bear out these suggestions. His own conviction, from personal experience, was so distinct that it had become his practice, whenever he went to perform a capital operation, to include among his instruments a transfusion apparatus and a packet of salt sufficient to make four pints of normal saline solution. (British Medical Journal, April, 1893, p. 697.)

SPRAINED ANKLE.—Treatment.

Dr. V. P. Gibney, of the New York Polyclinic, offers, in the journal of that institution for January, some suggestions concerning the treatment of sprained ankle. For four years he has relied chiefly on the use of an adhesive plaster supporting dressing, and he has had a success so nearly uniform and satisfactory that he has no inclination to exchange the method for any of the older ones. Dr. Gibney owns his indebtedness for the new method to a little book by Mr. Edward Cotterell, of the University College Hospital, London. It was not until the end of 1888 that the treatment advocated in the brochure was fully digested and put into use by Dr. Gibney. He had all through his previous surgical career looked upon a sprain as a kind of mystery "not always so bad as a fracture, but sometimes more tedious," requiring fomentations for a little while, then a fixed dressing of plaster-of-Paris or silicate of sodium, crutches perhaps, and rest and massage afterward. He had never been attracted toward these methods, and he had come to expect a "stiffish" joint in nearly every case that came under his charge. His first case to be tried according to Cotterell's plan was that of a lady who had wrenched her right ankle severely. The usual external features of a sprain were present ; no dislocation or fracture could be made out. Dr. Gibney first cut strips of rubber adhesive plaster, about half an inch in width and long enough to completely encircle the foot. Then with the foot well raised, he strapped it, the ankle, and the lower third of the leg with these strips, very much as if he had had an ulcer to treat. The first strip was carried over the outer side of the foot from near the base of the little toe. The second strip crossed the

first, the third lapped over the first, the fourth overlapped the second, and so on, until at the conclusion he had practically constructed a Scultetus's bandage of adhesive strips extending far enough to include the lower third of the limb. Over this he placed a cheese-cloth bandage to help the plaster strips to adhere to one another, and to make the dressing more tidy. The patient was told to put on her stocking and shoe and to walk about the room. The walking was accomplished with some diffidence, but with no real difficulty. She was made to walk the next day, and went out shopping without any bad results. The recovery was without relapse, and the usefulness of the ankle-joint was unimpaired. This plan of treatment has been used by Dr. Gibney and his assistants in their hospital service, as well as in private practice. Not a few medical friends of his have followed his example in the employment of what he terms the "modern treatment of sprained ankles," and their reports are uniformly in praise of the method; he does not recall that any of them has made an adverse report. This plan of treatment has the advantage of entailing the minimum amount of enforced detention from the ordinary pursuits of life, and does not tend to leave a stiffened joint. (Editor, New York Medical Journal May 13, 1893, p. 529.)

AFFECTIONS OF THE SKIN, &c.

ACNE VULGARIS.—Treatment.

Dr. Renault (*Rev. de Clin. et de Therap.*, 1892) describes in detail the management of this disease, which he divides into three types. In *mild* cases he advises dabbing the face lightly with water previously boiled and allowed to become as warm as the patient can stand, the sponge used having previously been kept in a 1 per cent. solution of corrosive sublimate. This ought to be practised night and morning and sponge used always kept in a weak sublimate solution. In *moderate* cases the use of sulphur ointments (1-10) at night is recommended, or the painting of the face at night with salicylic acid (10 parts), or iodoform (4 parts) in 30 of ether. In *severe* cases, where comedones and pustules are abundant, and there is much induration, R. advocates the rubbing of the face with black potash soap at bedtime for several nights, leaving the lather on till the morning, when it may be washed off with warm water and the face powdered with starch. Usually the skin will be irritated to the proper degree in about five days, after which emollients ought to be substituted. Such are bran, starch, or mallow-water with one-third their amount of a 20 per cent. solution of boric acid, and they may be applied

as sprays to the part, which must afterwards be carefully dried and dusted with starch. These methods must be employed alternately for five or six weeks, after which merely a certain amount of erythema remains. For this the following formula, used by Besnier, is recommended :—℞ Sulphur precip., glycerini (mixed in water), alcohol camphorat., aq. rosæ—āā partes equales. *Sig.*—To be applied at bedtime with a brush and allowed to remain on all night. If the indurated nodules resist these methods of treatment recourse must be had to surgical measures. The best of these are (1) destruction with very fine thermocautery, or (2) the linear scarifications as practised by Vidal in lupus. The importance of general medication must not be lost sight of. (The British Journal of Dermatology, February, 1893, p. 63.)

ACUTE SCLERODERMA.

At the American Pediatric Society, May 26, 1893, the subject of "Acute Scleroderma" was carefully presented in a paper by Dr. William Osler, of Baltimore, who, after referring briefly to the literature, reported a case in detail, with the results of the post-mortem examination. The subject was a child, 14 months old, who first developed a croupous pneumonia, and eight days later first showed the changes in the skin ; with this there was a fall in the temperature to 98° in the rectum, and on the following day the whole body was like a block of wood. Deglutition was impossible, and the body felt cool, although the temperature in the rectum was 99°. Death occurred on the next day, and the autopsy was held a few hours afterwards. The body appeared as rigid as if frozen. There was no pitting on the firmest pressure, and the only portions not involved in this strange process were the skin of the head and of the genitals. The microscopic examination showed a peculiar metamorphosis of the connective-tissue fibres already present so that the structure of the skin bore a marked analogy to that found in portions of the body where the skin is normally comparatively immovable. The majority of clinicians at the present time incline to the neuropathic theory of the origin of acute scleroderma, but there is also much to support the inflammatory theory. (Medical News, June 10, 1893, p. 638.)

CHILBLAINS.—Ointment for.

(*Union Médicale and Journ. de Mal. Cutan.*, November, 1892.) ℞ menthol, 0 gr. 75 ; Salol, 1 gr. 50 ; ol. oliv., 15 gr. ; lanolin, 45 gr., ft. ung. The first application diminishes pain and softens the skin. Afterwards rhagades disappear if the ointment is applied regularly once or twice a day. (The British Journal of Dermatology, February, 1893, p. 64.)

DERMATOL IN SKIN DISEASES.

H. Isaac (*Deutsche med. Wochenschrift*, 1892, No. 25) speaks highly of this new remedy in cases where a superficial and drying effect is desired, as in the various forms of intertrigo resulting from friction and sweat; in intertrigo complicated with eczema; in acute weeping eczema; in acute inflammations produced by such substances as corrosive sublimate and iodoform; and in the various affections characterized by superficial losses of substance, as erosions, excoriations, and fissures. It is also valuable in burns of the second degree, and in freely-secreting leg ulcers, its action being to aid cicatrisation. (The American Journal of the Medical Sciences, April, 1893, p. 470.)

ECZEMA RUBRUM.—Black Wash in.

There is a non-specific affection of the skin which, when occurring on the lower extremities, is about as troublesome and tedious a complaint as any one can possibly have—I refer to red-eczema, *eczema rubrum*, and which is associated with intense itching, burning, weeping of serum, and more or less swelling of affected part. It is to Dr. Spender, of Bath, that the credit of suggesting "black wash" as an application in this disease is to be given. I use it frequently in the way that he has advised, I may say, without failure. He says (*Journal of Cutaneous Medicine*, vol. iv):—"Take some common black wash, mix with it a tenth or twelfth part of glycerine by measure, and let it be well shaken. A small quantity of this mixture being poured into a wide shallow vessel, as a saucer, strips of linen are soaked in it, and after being lightly squeezed, are placed evenly and smoothly round the affected limb, a portion of the black oxide of mercury adhering to the linen. A bandage secures the dressing in its place, and the work is done. The dressing should be renewed night and morning; an impervious covering should on no account be put over it, as the pent-up secretion would decompose and possibly inoculate a fresh area of skin. The dry linen strips can always be easily removed by being first well saturated with warm water." (Dr. H. S. Purdon, Dublin Journal of Medical Science, August, 1893, p. 95.)

ICHTHYOL.

Schwimmer, of Buda-Pesth (*Rev. Annals de Derm. et de Syph.*, February, 1893), gives the result of his observations on ichthyol in the *Wiener Mediz. Wochenscrift*, 1892, pp. 1130-1187. *Erythema* is regarded as an affection of the skin occasioned by nervous influences, and accompanied by vascular paralysis. In a large number of cases, Schwimmer has observed that the erythema subsided much more quickly under the influence of ichthyol than under expectant or other treatment.

A case of erythema, which had gone on to the stage of exudation, is cited, where a part of the lesions were treated with ichthyol, while the rest were simply powdered or treated expectantly. The lesions treated by ichthyol disappeared much the more quickly. He does not consider ichthyol as a specific for erythematous affections of the skin, however, but as one of the remedies whose action is most sure. Control experiments have proved its superiority to sulphur and bismuth. In erythema nodosum the effect of ichthyol is not so striking, although it is not without value. Its action depends upon the astringent power that it has upon the vessels. *Erysipelas.*—Here the action of ichthyol is incontestable. He has for two years employed exclusively ichthyol in an aqueous solution: Aq. dest., 30 grammes; ℞ Ichthyol, 10 grammes. M. In patients with elevation of temperature and considerable inflammation and tumefaction of the skin, good results have been obtained by applications made two or three times a day with this solution, taking care to overstep the limits of the affected parts. The action is not so pronounced in cases of erysipelas consecutive to disease of the skin. He thinks that ichthyol arrests the progress of erysipelas by destroying the growth of the pathogenic micrococci. *Acne and Acne Rosacea.*—His first step is to convert a disseminated acne into a diffuse inflammation. For this purpose he uses the following ointment: ℞ Lac. sulphur and amyl, āā 5·0; saponis virid., 10·0; adipis, 20 to 30. M. A light coating of this ointment is applied in the evening for one or two hours, upon a portion of the face, then the part is bathed in warm water and powdered with an indifferent powder during the night. Usually, after one or two weeks, a more or less intense inflammation and desquamation of the parts treated are produced, and the acne papules have almost completely disappeared. At this stage the use of ichthyol is begun, the inflamed parts are painted two or three times a day with the ichthyol solution, and covered at night with an ichthyol ointment. If vascular dilatation coexists with a small number of papules or pustules, long-continued applications of ichthyol have been rewarded with good results. *Eczema.*—In this affection variable results have been obtained. In cases where we have a diffuse redness of the skin with serous effusion, a solution of 20 or 30 per cent. ichthyol has an irritating action, so that it is necessary to suspend treatment from time to time. In chronic forms, where the eczema in consequence of preceding treatment has reached a period where there is little tendency to complete healing, ichthyol often succeeds well. For the intertrigo of children, ichthyol has seemed more efficacious than any other treatment. Ichthyol may also be employed in psoriasis, sycosis, furunculosis,

lymphangitis, as well as idiopathic and traumatic dermatitis. Its action is marked in acute inflammations, slight in chronic. The ichthyol varnish is spoken of as having rendered good service. ℞ Ichthyol and Amyl., āā 20; aq. dest., 50; albumin, 0·5 to 1·0. M. (Dr. J. T. Bowen, Boston Medical and Surgical Journal, April 6, 1893, p. 338.)

LUPUS.—Treatment by Operation.

At the Medical Society on March 13, 1893, Mr. Bruce Clarke read a paper on "The Treatment of Lupus of the Face by Free Removal and Skin Grafting with Large Flaps." After alluding to the length of time which had elapsed since skin grafting had first been attempted, he passed briefly in review the various plans which had been adopted for the repair of lost skin, pointed out how great an improvement had been effected by Wolfe's method and finally by Thiersch's, which was the mode referred to in his paper. He briefly described the mode of cutting the grafts and pointed out that it was necessary to arrest all bleeding before applying them to fresh surfaces, otherwise they would not adhere. He had treated some six or seven cases of lupus by this plan, and was certain that it was a great improvement on mere scraping. He had made a series of microscopic sections of one case on which he was operating, and he felt sure that much more tissue must be removed than could easily be done with a Volkmann's spoon if the diseased structures were to be extirpated, and unless this were done no permanent cure would result.—Mr. Bruce Clarke then showed two cases: the first was that of a young woman on whom he had operated about eleven months ago, removing the lupoid tissue by excision, baring the cartilage of the nose and clearing out the diseased mucous membrane from the interior of the nasal cavity. The second case was also in a woman, and was one of lupus of the nose of a more exuberant character. In this, owing to failure to excise the growth at the margin, there had been a slight recurrence of the disease. (The Lancet, March 18, 1893, p. 593.)

MENTHOL FOR PRURIGINOUS CONDITIONS.

Colombini (*Giorn. Ital. d. Mal. Vener.; Wiener med. Pr.*, No. 19) has obtained excellent results from the employment of preparations of menthol (from 5 to 10 per cent. in alcohol, from 1 to 6 per cent. in oil, from 2 to 6 per cent. in powder) in the treatment of pruritus from whatever cause, but especially in those cases in which the scratching of the skin was responsible for the cutaneous affection, and particularly in cases of urticaria, in some forms of eczema, and in the pruritus of scabies. Preparations applied to excoriated surfaces or to mucous membranes should not be too concentrated, else they will cause burning;

nor should too extensive surfaces be treated at once, as the sensation of cold produced may become disagreeable. In cases in which the itching is but a symptom, the primary disease will require special treatment. In such cases menthol can only bring about amelioration, and the pruritus will not entirely disappear until the causative disease has been cured. (Medical News, July 8, 1893, p. 48.)

PSORIASIS.—Treatment by Thyroid Feeding.

Dr. Byrom Bramwell records three cases of severe psoriasis in which the disappearance of the disease was caused by the administration of a quarter of a raw thyroid gland finely minced, and concealed in rice or a 5 to 10 minim dose of Brady and Martin's Glycerine Extract of Thyroid was given daily. All the patients were females, one suffering from almost universal, the others from very extensive and severe disease. *Case 1* was under treatment from February 4, to June 3, though she is described as being well some weeks before that date. *Case 2* was under treatment from May 10, to July 14. *Case 3* was six weeks under treatment. In all the cases no local treatment was used and the thyroid extract did not seem to produce the constitutional disturbance which is so marked in cases of myxœdema treated in the same way. In one case an immediate effect was produced by the remedy within twenty four hours and after a single dose (5 minims of extract) the patient stated that her arms felt less stiff and painful than they had previously done. Dr. Bramwell says : I have treated several other slight cases of psoriasis by the internal administration of thyroid extract. In one of them, which is associated with frequently recurring attacks of epilepsy, the remedy did not produce any beneficial effect ; in fact, during its administration the eruption, instead of disappearing, extended and increased. It should however, be stated that this patient has, during the whole course of the thyroid treatment, been taking full doses of bromide of potassium. Whether this is the cause of the failure or not I cannot say. In another slight case the eruption, which has disappeared from time to time under the thyroid treatment, has more than once reappeared. These are the only cases which I have treated in which the remedy has failed to produce marked improvement. My friend, Dr. Stocker, of Dundee, however, tells me that in a case of very severe and diffuse psoriasis under his care in the Dundee Infirmary, the administration of thyroid extract seemed to produce little or no good. But, allowing for these failures, I think you will agree that the results which were obtained in the first three cases are very remarkable, and warrant a further trial of the remedy, not only in psoriasis, but in other affections of the skin, and especially in exfoliative

dermatitis. The remarkable effects which have been obtained in myxœdema show that the secretion of the thyroid gland exerts a profound effect upon the nutrition of the skin. I am disposed to hope that in other skin diseases beneficial effects may perhaps be produced by the administration of the remedy. As yet I have had no opportunity, however, of putting this theory into practice. I have certainly administered thyroid extract in one case of lupus and in one case of acute eczema, with the effect in the former of apparently producing distinct improvement, and in the latter of allaying the marked cutaneous irritation which was present. In the case of acute eczema the remedy was discontinued at the end of a week, for the disease appeared to be subsiding under rest in bed and the avoidance of external irritation. Under these circumstances it seemed inadvisable to continue the remedy lest an erroneous deduction might be drawn. In that case in which the disease was spontaneously disappearing there was an obvious source of fallacy ; I was anxious to avoid the possibility of ascribing the improvement which was spontaneously taking place to the thyroid treatment. Possibly I was over-cautious, and I certainly think that in cases of eczema the the remedy deserves a trial, and will probably be of benefit. But this source of failure does not apply to the cases of psoriasis which I have detailed. In two of the three cases the eruption was of considerable, and in the third, of long duration ; it had manifested no tendency to heal ; in fact, it had resisted ordinary plans of treatment ; and it immediately began to disappear under the administration of thyroid extract, no other remedies, local or internal, being employed. In two of the three cases a complete, though possibly only temporary cure, has been effected; in the third case the same result is rapidly being attained. (British Medical Journal, October 28, 1893, p. 934.)

RINGWORM.—Treatment.

In the Dermatological Section of the British Medical Association Dr. Alder Smith (Christ's Hospital) contributed a paper in which he pointed out that it was not new "parasiticides" which were required, but some reliable means of getting them into contact with the deeply situated fungus. Cure of chronic ringworm was brought about almost always by producing some alteration in the nutritive condition of the skin, so that the diseased hairs come out, leaving an artificial alopecia, or by causing irritation and exudation into the hair follicles, so that the invaded hairs, together with the fungus, were thrown off, and a temporary bare place left. The truth of this was proved by the fact that hairs, once invaded by the trichophyton tonsurans, did not recover under the use of parasiticides, but invariably came out, and were replaced by fine downy hairs not invaded by ringworm

fungus. After twenty-three years' experience in treating a very large number of cases of ringworm, he was still of opinion that croton oil was the best irritant for the attempted artificial production of "kerion," or at least of sufficient exudation into the follicles to cause the diseased hairs to be thrown off with the discharge. The greatest attention should be paid to the details of this strong treatment, or else trouble or even slight scarring may result. One of the most important was that a parasiticide, such as carbolic glycerine (1 in 8), should be freely used; the places must be bathed and poulticed constantly day and night, so that no scabs can form under which ulceration might occur. For "disseminated ringworm," where there were isolated stumps about the scalp, the best plan was to cause each stump to be thrown off by individually needling each diseased hair follicle with a properly-shaped fine needle, dipped in croton oil containing an eighth part of carbolic acid. If this caused too much pustulation creasote must be employed. If there were only a few stumps to be removed this might easily be accomplished by electrolysis. Lately he had used the croton-oil treatment for small patches of recent ringworm with great success, taking special care to prevent the spread of the disease by sulphur ointment. Cases might thus be cured in a few weeks, which would have taken as many months, or even much longer, under ordinary ointments or lotions. He was confident that in 90 out of every 100 cases really cured he had had to employ some croton oil sooner or later to the patches, or had had to needle out some isolated stumps left after other remedies had failed. (British Medical Journal, August 26, 1893, p. 469.)

Ringworm.—Treatment.

In the same discussion, Dr. W. Allan Jamieson said the principles of treatment essential to the successful management of tinea tonsurans capitis were:—(*a*) *To keep the Scalp scrupulously clean.*—As a preliminary towards the accomplishment of this end, the hair must be taken off, either shaved at frequent intervals, or cut as short as sharp surgical scissors can clip it. Then the scalp must be washed daily, and for this purpose a potash soap unquestionably suited better than a soda one. For some time he had employed exclusively a fluid potash soap, neutral in reaction, and superfatted to the extent of 5 per cent. A small quantity of this was poured on a piece of flannel, previously moistened with warm water, and used with friction and the addition of more water, to free the scalp from all scales, broken hairs, and *debris.* (*b*) *To act on the Soil with the view of removing Eczema and Seborrhœa.*—Nothing suited better to cure the eczema and keep the scalp free from seborrhœa than the ointment suggested by Dr. Bulkley, consisting of tannic

acid 1 drachm, carbolic acid 5 grains, and cold cream 1 ounce. This was well rubbed in in small quantities each alternate day. It acted beneficially in two ways—as an antipruritic, and as a mild antiseptic and parasiticide. Its main value, however, was to render the scalp smooth, and to make it more firm in texture, thus transmuting the soil into one less favourable for continued parasitic growth. (*c*) *To starve out the Fungus by the use of Agents inimical to its growth.*—The agents which had proved most useful in his hand in fulfilling this indication had been sulphur in combination with a mercurial or oleate of copper. Of sulphur 1 drachm, with half a drachm of ammoniated mercury, of oleate of copper from 25 to 50 grains in an ounce of lanoline, the best expedient on the whole. These ointments were used in small quantity, but thoroughly rubbed in, on the alternate day to that on which the tannic ointment was employed. The sulphur had sometimes shown rather too drying an effect on the scalp ; the oleate had now and again caused irritation. The latter had occasionally failed, and the cause had seemed to be the following : The hairs to all appearance became healthy, yet, on extracting some, a few spores could be seen on the exterior of the deepest part of the root, and, on discarding the treatment, recrudescence of the complaint took place. When, therefore, the treatment had been initiated by the oleate of copper, it was well to finish off with a course of sulphur and ammoniated mercury. The results of this mode of treatment could not be formulated statistically. Though he had been testing it for more than eighteen months, the irregularity with which out-patients at hospitals attended had been vexatious, and the cases in private had not been numerous enough to permit of any wide generalisation. It was so far the most satisfactory he had employed, both viewed from a therapeutic and from a hygienic standpoint. When rigorously carried out, the absolute smoothness of the scalp, and, in all but a few cases, the complete freedom from any irritation in those subjected to it, was most conspicuous. Other modes of treatment were tried and rejected. Thus, an obstinate case of disseminated ringworm of the scalp in a well-grown girl was treated for a period of two months in the following way. The hair was kept short by shaving, and washed once a week. It was painted afresh after each washing with a solution of chrysarobin in chloroform, and this covered over with zinc glycerine jelly and absorbent wool. No appreciable improvement was observable. The case was afterwards cured by other methods. Hydronaphthol plasters were tested when that remedy was suggested, but the disadvantage of plasters was that the growing hair soon raised them from that close approximation which was essential, and hydronaphthol itself was soon found either to cause irritation or to be entirely

inoperative. Glycerine and glycerine of starch were tried as excipients, but neither proved as efficient as fatty substances, which were both more permanent and more penetrating, and possessed no serious drawbacks, while they tended to exclude oxygen, and thus aided the incorporated medicament in starving out the parasite. (Ibid., August 26, 1893, p. 471.)

Ringworm.—Treatment.

Having giving directions, first, for the constant cutting of the hair around the patches, or where possible for the periodical shaving of the head under suitable antiseptic conditions, secondly, for the frequent washing and annointing of the head with a parasiticide to prevent auto-inoculation, a knowledge must be obtained of the degree of tenacity of the ringworm and the quality of the child's scalp. For this purpose he would begin with one of the well-known parasiticide treatments, such as salicylic acid ointment or liniment (℥j to ℥j), bichloride of mercury ointment (gr. v to ℥j), Illingworth's biniodide of mercury solution, equal parts of sulphur and salicylic acid ointments, Alder Smith's citrine, carbolic acid, and sulphur ointment, oleate of copper ointment, Foulis's turpentine and iodine treatment, iodine ointment or liniment, chrysarobin ointment, Cavafy's boric acid solution, &c. The selection of the particular parasiticide and of the incorporating medium depended on a variety of circumstances, such as the age of the child, the extent of the disease, the social status, and so on. No doubt some agents seemed to be more effective in certain cases than other applications, but there was no criteria. What was of greater importance than the selection of a particular parasiticide was the energetic supervision by the medical man. It was often of little avail simply to give directions. The medical man must make certain that he had in attendance on the case a reliable person who would take an intelligent interest in the treatment, and he must satisfy himself that his directions were thoroughly carried out. Due regard being paid to the personal characteristics and health of the child, the more frequent and determined the application of the remedy the better. Epilation should be tried from time to time to see if the hairs could be extracted without breaking. Every hair so extracted was a distinct step towards the goal. Cases in which the disease is not very tenacious, or at any rate the less effected areas, could in this manner be cured after a time. If, however, the disease were obviously resistent, and if a more rapid method of cure was necessary, the principle of irritation should be brought into action by gradually increasing the strength of the applications or by using the more irritant ones, as iodide of sulphur, red oxide or red iodide of mercury, &c., or by adding a little blistering fluid or croton oil to the application, or by painting on

pigments of the type of Coster's paste. Epilation was an essential feature of this treatment, and should be carefully and systematically carried out, afterwards applying a parasiticide. Lastly, for very inveterate cases of limited extent, or for isolated diseased hairs, or for a very rapid cure in cases of urgency, the croton oil treatment should be resorted to. (Dr. Colcott Fox, British Medical Journal, August 26, 1893, p. 469.)

Ringworm.—Treatment.

Butte (*Ann. de Derm. et de Syph.*, No. 4, April, 1893) recommends iodised collodion as a valuable remedy in the treatment of ringworm. His method is as follows: To the affected surface and its surrounding margin one of the following collodion solutions is applied: (1) Alcohol at 95°, 12 g.; metallic iodine, 0·75 g.; dissolve and add collodion, 35 g.; Venice turpentine, 1·50 g.; castor oil, 2 g.; or (2) alcohol at 95°, 5 g.; ether, 5 g.; metallic iodine, 0·50 g.; collodion, 30 g. These are applied for three or four successive days until there is a homogeneous adherent thick layer. After fifteen days this layer is removed, and the part of the scalp which is laid bare is washed with a solution of perchloride of mercury, 1 in 500; afterwards the patch is treated by the ordinary methods. Hallopeau employed a somewhat similar treatment with success, alternating four days of a solution of iodine in collodion of 1 in 30, with three days of vaseline. (Epitome of the British Medical Journal, June 17, 1893, p. 96.)

THIOSINAMIN IN LUPUS.

At the Second International Dermatological Congress (*Ref. Viertel. f. Derm. u. Syph.*, 1892, 6 hft.), H. von Hebra described the result of his experimentation with thiosinamin, especially in the treatment of lupus. Thiosinamin is prepared by heating two parts of allyl-mustard oil with one part absolute alcohol and seven parts aqua ammoniæ, at a temperature of 40°. A fifteen per cent. alcoholic solution of this drug was used for hypodermic injection, the back being chosen as the site. The result is a local reaction without constitutional disturbance. In the case of lupus, the deseased parts begin to appear red and swollen about two hours after the injection, sometimes later. The swelling may be so acute that the epidermis is broken through and superficial fissures are formed. This reaction continues from four to six hours. No fever nor constitutional disturbances were noted. A desquamation of the lupus patches occurs after the reaction has passed off. As to the therapeutic effect, a change in the lupus is seen after a few injections. If it were an elevated lupus tumidus, it is found to be very much less prominent, the protuberances are smaller and the whole lesion is flatter. In an ulcerated lupus the ulcers are quickly cleaned

off and begin to heal. The effects of thiosinamin were also important in the case of scar tissue, both that following an ulcerated lupus, and that caused by burns, &c. Where the contractions of the cicatricial tissue have given rise to stiff joints and other deformities, a complete softening may be produced by thiosinamin. Chronic glandular tumours are also favourably affected. Often they are perceptibly diminished after one injection; this effect is seen in tuberculous, but not in syphilitic glandular swellings. An increased diuresis is observed, which is followed, however, by no serious symptoms on the part of the kidneys; and after continued use, this effect is not produced. There is a well-defined absorbent action, in which the lympathic system seems to bear a prominent part. This may also have its disadvantages, as Hebra has noticed that many patients with tuberculosis of the lungs, whose fever has disappeared, begin to suffer a rise of temperature again after several injections. In one case very severe night-sweats were essentially lessened by the injections. The procedure has a very marked effect on the general condition, stimulating the appetite and increasing the weight. No unpleasant effects were observed, and there were no abscesses at the site of the injections. Experiments upon animals showed that large doses produced no effect upon the heart. Hebra's experience has been limited thus far to cases of lupus, and trachoma, and caries and necrosis of bones; but he thinks that many other inflammatory processes will be found to exhibit the local reaction. He lays great stress upon this eclectic action upon diseased tissue, as it offers great similarity to the action of tuberculin, *without, however, limiting itself to tuberculous tissues.* (Dr. J. T. Bowen, Boston Medical and Surgical Journal, April 13, 1893, p. 368.)

AFFECTIONS OF THE EYE, EAR, THROAT, AND NOSE.

CEREBRAL COMPLICATIONS OF OTORRHŒA.—The Position in which to Trephine.

The best position for applying the trephine in cases of cerebral complications following otorrhœa, although much discussed, can scarcely be said to be as yet definitely settled. To this desirable end the papers of Prof. Birmingham on the mastoid region of the skull form a most important contribution. In them are to be found what the surgeon really wants—the limits of variability of important structures, and not the average position. From these it will be seen that the lateral sinus is subject to great variability, and that if the trephine is applied in the position

selected by Mr. Wheeler—*i.e.*, the circumference of the trephine on a level with upper border at the external auditory meatus, and in front of a vertical line passing through the tip of the mastoid process, the lateral sinus will be exposed in a considerable proportion of cases. In addition to risk of hemorrhage, the field of operation is much limited by this procedure. Again, on mechanical grounds, as Prof. Birmingham has shown, this operation is objectionable; while one portion of the trephine circumference is cutting the thin squamous portion of the temporal bone, the lower portion is cutting deeply into the petrous bone. Undoubtedly with care the remaining piece of bone can be broken through to remove the crown, but it is manifestly advantageous to select, if possible, a region for trephining where the skull is of more uniform thickness. There is, however, I think, a much graver objection to the adoption of Mr. Wheeler's site than either of the anatomical points above alluded to—that is, that where otorrhœa has existed for some time the air-cells of the mastoid and so-called mastoid antrum are in a highly septic condition. If now one portion of the trephine crown is cutting through this highly septic focus, while the other is opening up the cranial cavity, it is impossible to conceive a more probable way of producing intra-cranial sepsis. With regard to the position selected by Mr. Barker, Reid's base line must first be marked out—*i.e.*, a line joining the lower margin of the orbit with the middle of external auditory meatus, and produced backwards; the point at which the pin of the trephine must be applied is one and a half inches behind the centre of the external auditory meatus, and one and a half inches above this line. As Prof. Birmingham has pointed out, a three-quarter inch trephine applied here will sometimes expose the lateral sinus, and he suggests that to avoid this important structure the point selected should be two inches above Reid's line. In my opinion, Barker's point is too far removed from the focus of disease, while the additional half inch necessary to certainly avoid the sinus removes the site of operation still further from the disease. I was present at an operation in which a three-quarter inch trephine, applied at Mr. Barker's point, exposed the lateral sinus, and failed in reaching an abscess which would readily have been dealt with had the opening been made immediately above the meatus. It appears to me that in the majority of cases of otorrhœa requiring surgical aid it will be possible so far to diagnosticate the state that one of four operations should be selected:—(1) When disease is confined to the mastoid bone the antrum should be opened on the lines laid down by Prof. Birmingham, and the cranial cavity not encroached upon at all; (2) where abscess of the temporo-sphenoidal lobe is indicated, trephine immediately

above the external auditory meatus, so that the lowest point of the trephine circumference is half an inch above the upper margin of the external auditory meatus; (3) where the symptoms point to abscess of the cerebellum, as Prof. Birmingham has pointed out, a three-quarter inch trephine applied one inch below Reid's base line, and two inches behind the centre of the meatus, will expose the cerebellum below the lateral sinus; (4) where thrombosis of the lateral sinus is diagnosticated, cutting across the internal jugular vein and scraping out the septic clots, as recommended by Mr. Ballance, appears to be the most scientific procedure. (Dr. Charles B. Ball, Dublin Journal of Medical Science, August, 1893, p. 93.)

CHOLESTEATOMA OF THE MASTOID CELLS.

The term "cholesteatoma" seems to have been applied generally to formations having for their characteristics cholesterine and fatty material. Thus it has been used for dermoid and sebacous cysts, degenerating granulomata, as tubercle, and for the caseating and inspissated products of chronic suppuration. In the ear the term has also been applied to epithelial plugs of the canal. The true cholesteatoma of the mastoid is not a neoplasm in the strict sense of the word, but is due to the accumulation of many generations of squamous epithelial cells which are successively shed. The epithelium grows into the mastoid antrum or cells from the auditory canal or tympanum through an opening previously caused by carious and necrotic processes. Though one or two cases have been recorded where no history of suppuration was obtained, I am inclined to believe that these were instances of deeply seated dermoid cysts. A large portion of these formations will consist of débris and the products of fatty degeneration originated in inspissated pus. The more fluid parts are absorbed, leaving the cells behind. The complicated cavities opened up in mastoid disease seem especially designed to catch and intercept the solid particles of pus, which become deposited there as mud and silt are in the bays and creeks of a sluggish river. The constant deposition of shed epithelium from the exterior produces pressure and an appearance of concentric lamination. The constant pressure causes absorption, and large cavities may thus ultimately result. The symptoms occasioned by such tumours are largely those of chronic mastoid disease, and it is only on exploration that their true nature can be detected. In a few cases large masses of the white tough material have escaped spontaneously, or may be seen by the speculum projecting into the tympanum. After free excision efficient drainage of the resulting cavity is best carried out by removing the overlying bone far more thoroughly

than is generally done. In cases of accumulations of this kind within the tympanum soaking with alkalies or pancreatic liquor, followed by the use of the intra-tympanic syringe, is useful, and if much difficulty be experienced the membrane can be freely divided and the substance carefully evacuated with small scoops. In such cases, however, the mastoid antrum, which is directly continuous with the attic of the tympanum, is usually also implicated. (Mr. Marmaduke Sheild, The Lancet, May 13, 1893, p. 1128.)

COUNTER-IRRITATION IN EYE DISEASES.

I would like to describe a method of counter-irritation that has been employed in Edinburgh for, at any rate, above thirty years, and which is to my mind by far the most efficient. It consists in moistening the skin of the upper lid, and then rubbing a stick of lunar caustic three or four times across the moistened surface. Within a few minutes a burning pain is experienced in the lid, the skin becomes reddened and the lid œdematous, while the epidermis at the part to which the caustic was applied presents an ashy grey tint. The severe pain lasts from half an hour to an hour, but the surface of the lid remains tender to the touch for two or three days. The œdema speedily subsides. A black crust, consisting of the deadened epidermis tinted by the silver, forms on the surface, but is cast off in the course of six or eight days, and leaves no permanent mark behind. I am willing to admit that some of the beneficial effect may be attributable to the rest of the eye and freedom from friction produced by the œdema of the lid, and also in part to the circumstance that the tender surface of the lid prevents the patient constantly rubbing the eye, but I am inclined to view the intimate nervous relationship between the lid and the globe as the main explanation of the great advantage that results from this form of counter-irritation. Let general physicians and surgeons who stand in doubt as to the utility of blisters observe for a few weeks their value in eye cases, and I think they will soon have their doubts resolved. (Dr. Argyll Robertson, British Medical Journal, October 28, 1893, p. 941.)

DISCISSION OF OPAQUE AND CRUMPLED POSTERIOR CAPSULE AFTER CATARACT EXTRACTION.

There is, according to Landolt, great diversity of opinion as to the danger involved in needling the posterior capsule. Knapp and others consider it absolutely without danger if done with proper precautions, whereas a large number of operators only do it when compelled because it is occasionally followed by irido-cyclitis or panophthalmitis. The question is of considerable

importance and amounts to this: Are we, with those who fear bad results, to rest content with second-rate vision from an opaque capsule, or shall we, with Knapp, freely give such cases the chance of good vision, venturing a certain amount of risk? And what is the degree of risk? Judging from my own experience I should say that the risk is small, as I have rarely had any trouble in consequence. A more important question is, What is the nature of the risk? This I believe to be in its beginning increased tension, which unrelieved may in some instances drift into irido-cyclitis or panophthalmitis. How are we to deal with this increasing tension? This is an interesting point and one which, perhaps, is not so fully appreciated as it deserves to be. Let me illustrate it by two cases which recently happened in my practice. In both instances I tore with needles the opaque posterior capsule: the one after an extraction of traumatic cataract by suction, the other after an extraction of hard cataract by a shallow flap. Within forty-eight hours each patient suffered intense pain and dimness of vision from increased tension. On the third day in one case and on the fourth in the other I punctured with a broad needle through the upper part of the cornea and through the iris into the vitreous humour. The needle, turned sideways, allowed a few drops of vitreous humour to escape. In a quarter of an hour, in each case, intense agony was converted into perfect ease. There was no relapse of pain or of increased tension, and in a fortnight the subject of the extraction of hard cataract read J. 2. If unchecked both cases would most likely have ended in panophthalmitis. All I know about the foregoing method of dealing with such cases is this. In the year 1864 when in London I told Sir William Bowman of a case of extraction by the semilunar flap which was causing me anxiety because, after discission of the capsule, it was falling off in condition on account of increased tension. He told me of the simple plan of puncture with a broad needle "through the iris into the vitreous humour." As soon as I returned home I acted upon this advice; normal tension was restored and vision was saved. I have now and then repeated the proceeding though only rarely, but the two instances I have named occurred within the last six months. (Mr. Teale's Bowman Lecture, The Lancet, June 17, 1893, p. 1429.)

[See also article by Mr. Teale "On the Extraction of Cataract by Shallow Flap," at p. 358 of this volume of the *Retrospect.*]

GLAUCOMA, CHRONIC.—Operative Treatment in.

Collins (*Roy. Lond. Ophth. Hosp. Rep.*, xiii, 2) infers that an iridectomy may remedy the increased tension due to apposition of the root of the iris to the posterior surface of the cornea in

the following ways: (1) When this apposition is recent, very slight means are sometimes sufficient, the escape of the aqueous and a drag on the iris being enough. (2) In some recent and acute cases the iris tears away from its extreme root, thus leaving a large portion of the filtration area free for drainage, even if the remainder of the iris retains its faulty position. (3) In some cases a permanent gap is maintained in the walls of the globe by the prolapse of a fold of the iris in the wound. This iris tissue subsequently either becomes stretched and atrophied or ruptures periodically, thus allowing the aqueous to pass through it into the subconjunctival tissue, and become absorbed by the lymphatics and vessels. By these means a new channel of exit for the aqueous is formed. He emphasizes the advisability of performing iridectomy for chronic glaucoma in the early stages of the disease, before the apposition of the root of the iris to the cornea has resulted in adhesion. (New York Medical Journal, May 4, 1893, p. 253.)

GOUTY RETINITIS.—Neuro-Retinitis and Chorio-Retinitis.

Dr. Stedman Bull appends the following conclusions to a paper on the subject:—(1) The changes in the fundus are always bilateral, though rarely symmetrical in the two eyes. (2) The degeneration in the walls of the blood-vessels and in the retina cause marked impairment of central vision, little or no loss of peripheral vision, and never end in blindness. (3) The loss of central vision is always progressive up to a certain point, unless the cause of the lesion is recognised early in the onset and immediately and properly handled. Improvement in the vision after the disease is established cannot be expected. (4) Hemorrhages into the retina are rare except in the early stage of the disease. Their absence later is probably due to the fact that the strength of the vascular walls is increased by the deposit, though their elasticity is diminished. (5) The most marked feature in the fundus is the development of arterio-sclerosis and phlebo-sclerosis. This is seen by the ophthalmoscope in the vessels of the retina, and the microscope shows that the degeneration exists as well in the vessels of the chorioid and optic nerve. (6) Another almost equally pathognomonic symptom is the peculiar yellowish granular exudation in the retina, located by the ophthalmoscope around the posterior pole of the eye and generally leaving the macula intact, and proved by the microscope to be mainly in the nerve-fibre layer, though found in all the layers except that of the rods and cones. (7) The changes in the optic-nerve fibres seem to be almost entirely intra-ocular, and cannot be traced for any great distance back of the eyeball. (New York Medical Journal, August 12, 1893, p. 175.)

IRITIS, SYPHILITIC AND NON-SYPHILITIC.—Diagnosis, Treatment, &c.

The differential diagnosis between syphilitic and non-syphilitic iritis is easy only to the inexperienced, and, in relation to a large proportion of cases, becomes more and more difficult as experience increases. Fortunately, however, the diagnosis, *quâ* iritis, is not of great importance; and need exercise little, if any, influence upon treatment. It is of the highest importance that the surgeon should discover whether his patient is the subject of constitutional syphilis, and that he should treat him for it when it exists; but this discovery may usually be made independently of the eyes. For iritis, whether it be syphilitic or not, unless it should yield within twenty-four hours to complete dilatation of the pupil, the only trustworthy remedy is mercury, which, in severe cases, should always be applied by inunction; and there can be no shadow of excuse for the practitioner who, under the impression that a given instance is not syphilitic, neglects the employment of the early means by which recovery, in the vast majority of cases, can be fully insured. In a malady so essentially chronic as serous iritis the rapid administration of mercury by inunction or by the mouth is seldom, if ever, desirable. I prefer to give the sixteenth of a grain of the perchloride of mercury in solution three times a day; combining it, if necessary, with any adjuvant, such as opium or bael, in quantities barely sufficient to prevent any gastric or intestinal disturbance. At the same time I attach great importance to the local application of mercury to the eye, and this may be best and most conveniently accomplished by means of the discs of wafers manufactured by Messrs. Wyeth, of Philadephia, and now procurable in London. I have found the best for the purpose to be the wafers containing each the 2500th part of a grain of perchloride of mercury; and one of these may be placed in the conjunctival sac night and morning ten or twelve minutes after the cocaine wafer has been inserted in a similar manner. By adopting this precaution the perchloride of mercury does not act as a local irritant; but, even after the cocaine, I have seen stronger wafers, such as those containing the 500th part of a grain, give rise to some uneasiness. The mercury should be continued, both internally and locally, until all fear of recurrence is at an end, and it should be relinquished gradually and watchfully. In the dose mentioned it may be taken for many months without producing any effect upon the gums, and it often acts as a decided tonic. Quinine may be readily combined with the perchloride of mercury, and it not only acts as a bactericide, but it also serves to sustain the system during the progress of a long and depressing malady. It may occasionally be laid aside for other tonics, and it is unnecessary to say that the state

of the secretions, the diet, and the habits of life should all receive careful attention. The patient should take exercise whenever the weather will permit, and should be protected against bright light by dark glasses or similar contrivances. The local treatment by atropine, or by atropine and cocaine combined, is required in order to diminish as much as possible the tendency to the formation and contraction of adhesions, and requires to be conducted with circumspection on account of the proneness of atropine in some eyes to excite irritation when it has been long employed. The weakest solution and the least frequent use by which dilatation of the pupil can be maintained are, therefore, to be recommended in all chronic cases, and if, in spite of these precautions, the atropine should be badly borne, it must be exchanged for duboism or hyoscyamine. (Mr. Brudenell Carter, The Lancet, April 29, 1893, p. 986.)

MASTOID DISEASE.—Treatment.

In the discussion in the Otological Section of the British Medical Association, Prof. William Macewen, in introducing the subject, said that he supposed that the term "mastoid disease" which had been used in the title of the subject for discussion, meant the extension of middle-ear disease to the mastoid region, and that it included for the most part infective disease of the middle ear and excluded tubercle and carcinoma. In the first place, with regard to the pathology of pathogenic infective disease, he found, as he had no doubt was the common experience, that the greater majority of these diseases travelled from the middle ear to the mastoid antrum and cells, and that they invaded, after destruction of the mucous membrane, the bone, and dura mater, the membranes of the brain. In many instances, after erosion of the bone, masses of granulation tissue extruded themselves from the dura mater, which, on removal, prompted reinfections by a fresh surface coming into contact with the infective material pent up in the middle ear. Speaking generally, he agreed with Schwartze in his recommendations as to the time when operations should be performed upon the mastoid in infective purulent diseases of the middle ear, and in such cases the mastoid antrum and the mastoid cells ought to be thoroughly ablated. He then referred to the surgical anatomy of the mastoid region, pointing out the relative position of the mastoid antrum, the sigmoid sinus, and the facial canal, and he showed that the safety zone lay in a space, which he had operated in for the last ten years, and found that he was always successful in striking the antrum, and which he named the suprameatal triangle. This triangle was free from the sigmoid sinus, and if one operated on the upper and external bone of it he was free from the facial canal. The facial canal lay on the

floor of the passage between the antrum and the middle ear, and traversed the floor of this passage to the inner side. As a rule, after opening the antrum, the attic of the middle ear was exposed by enlarging and opening the osseous bone forwards. After exposing the attic the ossicles were removed, and the whole of the granulation tissue of the middle ear cleared out. After this was done the tegmen of the attic was scrutinised by an efficient light, and, if eroded, was fully opened up, the granulation tissue removed from the dura mater, and the brain laid bare, and, if necessary, opened into. The abscess in the brain could be tapped from this region, but it had also to be opened above in order to remove sloughs of cerebral tissue, which could not otherwise come away. The sigmoid sinus was likewise dealt with in cases where the disease had spread in its direction. In all these cases it was necessary to remove the focus of infective matter in the bone, and to cut off the parts by which they travelled from the brain, and, therefore, although the opening might be made into the abscess from the squamous part of the temporal, the pathway by which the affection travelled into the brain would require to be dealt with. With regard to infective thrombus of the sigmoid sinus, he preferred to lay the sigmoid sinus fully open, to turn out the contents, to separate the outer wall of the sinus, and to involute this membrane upon the inner walls of the sinus itself, retaining it in this position by means of abundant powder of iodoform and boracic acid, and also by iodoform gauze. He preferred this method of ligaturing the internal jugular, because the ligature of the internal jugular did not wholly prevent the infective matter from getting into the lungs, as it passed by the large veins at the base of the skull from the interior and posterior condylar foramina, and so into the vertebral, and so into the subclavian, but there were cases where the internal jugular vein was involved, and in such a case he would advise the application of a ligature to that vein. With regard to the mastoid antrum, after having fully exposed the whole of the cavity, and ablated its connection with the mastoid cells as well as the mastoid cells themselves, he did either of two things. After the whole of the disease was removed, he stuffed the part and allowed it to heal by granulation tissue from the bottom, so that the masses of fibrous tissue formed in the spaces formerly occupied by the antrum and cells. If the disease in the petrous portion of the temporal bone had not been thoroughly evacuated on account of the depth of the situation and the intricacies of the passages in which it lay, he preferred to keep a permanent opening between the petrous bone and the external part of the head behind the ear, and he did this by "papering" the passage by means of epithelium spreading both from the middle ear and

the skin without. With regard to the results, he had operated upon 80 cases of mastoid disease alone, and in those where the disease had already been obliterated by the operation, he found a permanent cure resulting, but in those where the disease had spread into the petrous portion, it was necessary to keep this opening permanent, and there was in a good many such an amount of discharge of a sero-purulent kind. With regard to meningitis following upon infective disease of the middle ear, although at first he had had a doubt as to the propriety of operating where infective purulent meningitis had developed, he now had no hesitancy in performing such operations, and in a great majority of them he found very excellent results. The disease, although being present to a marked extent, had been arrested by this. In cerebral abscess there was no difficulty about performing the operation. It was one of the most satisfactory operations that could be performed upon the head, because it was urgently required. They were taking away a pathological product, and the results were eminently successful. With regard to the sigmoid sinus he had to make a like remark, provided always that the case was got prior to implication of the lungs.

Mr. Victor Horsely said that his own experience of these cases coincided with almost everything Prof. Macewen had advanced. He would therefore pass on to other points. The first and most important, so far as the interests of the patient were immediately concerned when the case was one of simple otitis media purulenta, was the question as to how long effort was to be made by ordinary antiseptic treatment to get the cavity to heel up before the radical operation of clearing the tympanum and mastoid was undertaken. He suggested that one year would be a convenient limit, and that if the granulations had not subsided, and if cicatrisation did not occur within that period the antrum of the mastoid should be laid open and the opening continued into the tympanum, so as to make one space of both cavities. In this way the grave risks to life of persistent discharge from the ear, such as blood poisoning, destruction of the bone, plugging of the venous sinus, inflammation of the membranes of the brain, and cerebral abscess could be avoided. As the operation of opening the mastoid was unattended with any risk to life, it was obvious that the only possible drawback to undertaking the radical cure was a chance of damaging the hearing, which was, of course, already disordered. On this point his experience showed that the hearing was sometimes perfectly normal after the operation, was sometimes improved by the operation, and was sometimes diminished to a certain degree. It was, therefore, quite clear that the question of risk to the hearing was not an important

one, and ought not to contraindicate the operation, which was undertaken to remove the risk to life which these patients ran. In connection with this point, he expressed his opinion that there was no advantage in leaving the stapes in position, and he quoted a remarkable case in which the tympanic cavity had been scraped out no fewer than three times, and in which, nevertheless, the hearing was perfectly preserved. After speaking of the value of prolonged drainage in bringing about a radical cure, and referring to the fact, also observed by Prof. Macewen, that the best results were obtained in cases where the bone of the mastoid region had been more attacked than the bone in the petrous portion, he proceeded to discuss the treatment of the facial nerve, and pointed out that, where the nerve had been exposed by disease, twitching of the facial muscles, if an instrument were passed across it, would warn the operator of its proximity, and so avoid accident to the nerve itself. In very distressing instances of complete destruction of the nerve by tuberculous disease he believed there was some possibility of restoring it by nerve grafting in a suitable case. He then passed on to the dangerous complication of plugging of the venous sinus, and referred to his original suggestion that in these cases the jugular vein should be ligatured in the neck to prevent the clot becoming loose, and so cause embolism of the heart or lungs. The brilliant results of Lane and Ballance showed the value of the measure, and the criticism that had been passed upon it from the point of view of connection of the sinus with the emissory veins had no substantial foundation, because the clot in these cases often extended beyond the veins in question, and consequently only the ligaturing of the jugular could in such cases save the patient. He agreed that in cases of abscess of the brain the cavity of the ear must be completely opened and disinfected at the same time that the matter was let out from the brain. (British Medical Journal, September 9, 1893, p. 567.)

OPERATIONS ON THE MIDDLE EAR.—Anæsthetics in.

[Dr. Clarence T. Blake appends the following conclusions to an important paper, which will be found at p. 373 of this volume:] (1) That general anæsthesia is not necessary in all cases to the successful performance of operations upon the membrana tympani or within the middle ear, where these are undertaken in chronic non-suppurative disease for the purpose of improving the hearing. (2) That local anæsthesia by means of cocaine in very small quantity is sufficient. (3) That the exploratory opening of the tympanic cavity and, if deemed necessary, subsequent operations within the middle ear in the line of the

sound-transmitting apparatus, when done under conditions of local anæsthesia which permit of the conscious and undisturbed co-operation of the patient, afford decided advantages, both for purposes of diagnosis and treatment. (4) That when preceded and accompanied by proper antiseptic precautions, and concluded by closure of the opening in the membrana tympani with similar care, the danger of subsequent suppurative inflammation is very slight. A long train of clinical investigations by many observers has shown that the non-suppurative tympanic cavity may, under proper antiseptic precautions, be safely invaded ; but, until very recently, the extreme sensitiveness of the parts, and the great importance of steadiness on the part of the patient during the progress of a minute operation within so small a space as that afforded by the external auditory canal and middle ear, have led to the belief that complete anæsthesia was absolutely necessary to the successful performance of any operation more extensive than a paracentesis, a plicotomy, or an excision of a portion of the membrana tympani. Complete anæsthesia, however, entirely abolishes that most important aid to the success of intra-tympanic operations undertaken in chronic non-suppurative cases for the improvement of the hearing, the relief of tinnitus or of secondary auditory vertigo, namely, that consciousness on the part of the patient which enables him to follow the different steps of the operation, to appreciate and to describe the auditory sensations, and to respond to the hearing tests which may be made from time to time during its progress. Under these conditions, in other words, the operative interference may terminate with the opening made in the membrana tympani if that seems advisable, or it may be intelligently continued to meet the ascertainable demands of the individual case. (Boston Medical and Surgical Journal, April 20, 1893, p. 387.)

OPHTHALMOPLEGIA.

Sauvineau (*Rec. d'ophthal.*, April, 1892) considers three classes of ophthalmoplegia of cerebral origin :—(1) Nuclear, of which there are two varieties—one bilateral and frequent, the other unilateral. (2) Supranuclear. (3) Cortical. After their exit from the peduncles, the motor nerves of the eye may be injured or diseased in their course at the base of the brain (basilar) or in the orbit (orbital). Finally, the primary lesion may involve simultaneously the terminal branches of the nerves in the orbit, the nerve trunks at the base of the brain, and the roots in the peduncles. These cases he calls ophthalmoplegia by peripheral neuritis. In bilateral nuclear ophthalmoplegia we have gradual abolition of the movements of the eye, attacking successively the different muscles, incomplete ptosis, and absence of reflex cerebral phenomena. The motility of the eyes is much easier in

the morning than in the evening, and this fact is characteristic of a lesion occupying the nerve-cells of the nuclei. Neuclear ophthalmoplegia may appear under three forms—interior, exterior, and mixed. (*a*) Ophthalmoplegia externa must be nuclear except in the acute form, where the lesion is situated above the nuclei. (*b*) Ophthalmoplegia interna must be nuclear if we exclude an orbital or peripheric cause. (*c*) In ophthalmoplegia mixta a nuclear cause is very difficult to distinguish from a basilar cause, and the diagnosis must be made by aid of concomitant symptoms. In the chronic form of nuclear ophthalmoplegia the protuberantial nuclei are first attacked. This polio-encephalitis superior corresponds to the primary lesion of the bulbar nuclei, which causes labio-glosso-laryngeal paralysis, and to that of the cells of the anterior horns of the spinal cord. The nuclei may be involved secondarily in a spinal or cerebro-spinal affection, or in general systemic diseases, as syphilis or diabetes. The subacute form is met with in infectious diseases and in the various forms of general systemic poisoning. In the acute form the lesion (hemorrhagic softening) does not involve the protuberantial nuclei, or does so secondarily. The lesion attacks the gray substance beneath the ependyma, which forms the walls of the third ventricle, aqueduct of Sylvius, and fourth ventricle. It is probable that the acute form, under the name of hemorrhagic polio-encephalitis, is not of nuclear origin. Unilateral nuclear ophthalmoplegia must be distinguished from the ophthalmoplegia of basilar or orbital origin, and if the paralysis is complete, the diagnosis is very difficult. It is easy if the paralysis is exclusively external or internal. Supra-nuclear lesions affecting either the co-ordinating centres or the fibres uniting these centres to the nuclei cause paralysis of the associated and conjugate movements of the eyes. Cortical ophthalmoplegia, met with in various neuroses, especially in hysteria, involves voluntary movements of the eyes exclusively. Basilar ophthalmoplegia is usually unilateral. It is always total and mixed. Amblyopia or complete amaurosis in the eye on the paralysed side is strong evidence of a basilar cause, and the same is true of optic neuritis. Another valuable corroborative symptom is unilateral olfactory paralysis. Another is anæsthesia of the frontal branch of the trifacial. The usual causes of basilar ophthalmoplegia are basilar meningitis, meningeal hemorrhage, lesions of vessels, and neoplasms of various kinds. Orbital ophthalmoplegia is generally due to a lesion of the nerves themselves or of their terminal branches. It is always unilateral and mixed, and is accompanied by pain and by more or less exophthalmia. Peripheral ophthalmoplegia is due to nerve lesions situated in those parts of the nerves below the nuclei. This variety is very rare in infectious diseases and very common

in tabes. It is characterised by its curability and by the existence of spasms of the associated muscles (retraction of the levator palpebræ of the diseased eye and spasm of the associated muscles of the sound eye). (New York Medical Journal, March 4, 1893, p. 257.)

PARTIAL MYRINGECTOMY AND REMOVAL OF THE INCUS AND STAPES FOR THE RELIEF OF CHRONIC CATARRHAL OTITIS MEDIA.

Dr. C. H. Burnett appends the following conclusions to a paper dealing with ten cases in which this operation was performed:—(1) The operation of partial excision of the membrana tympani (myringectomy of the posterior superior quadrant) is practically unattended by reaction. (2) Reaction not attending this modification of excision of the membrana, regeneration of the membrane is less likely to occur than when total excision of the membrana is performed. (3) Removal of the malleus is not necessary for relief in cases of simple chronic catarrhal otitis media. (4) The removal of the incus alone, or of the incus and the head and crura of the stapes, is followed by results as good as when the incus and the entire stapes are removed. (5) Displacement of the incus and leaving it in the drum-cavity, where the stapes is removed in part or in whole, is likely to be followed by inflammation of the middle ear. (6) Removal of the incus alone, the membrana, malleus, and stapes being left *in situ*, gives more space in the drum-cavity, increases its resonance, and permits freer access of sound waves to the stapes, thereby improving the heaving. (7) The relief of tinnitus and aural vertigo is very probably due to the liberation of the stapes from the impacting weight of the incus, forced inward and held so by the retractive power of the indrawn membrana tympani and malleus, as I suggested over four years ago. (Medical News, May 13, p. 512.)

STAPEDECTOMY AND OTHER MIDDLE-EAR OPERATIONS.

At the America Otological Society, July 18, 1893, Dr. Clarence T. Blake, of Boston, read a paper on "Stapedectomy and other Middle-ear Operations." As the result of an investigation conducted during the past year as to the feasibility and advisability of extracting the stapes in chronic non-suppurative disease of the middle ear, it was concluded that in those cases of non-suppurative disease of the middle ear, with a high degree of deafness, the operation of stapedectomy is most likely to be futile, because of the degree of fixation of the base of the stapes, leading to fracture of the crura in the attempts at removal. In the class of cases in which stapedectomy has apparently given

the best results, viz., fixation of the stapes as a sequence of chronic suppurative disease, it is by no means certain that equally good results could not have been obtained by surgical mobilization and subsequent care. While removal of the stapes is by no means so hazardous a procedure, it still opens up the possibility of interference to an unknown degree with the most important part of the organ of hearing, and an almost equally important peripheral organ of equilibrium. In order that the operator might, in the non-suppurative cases, avail himself of the coöperation of the patient and apply in the progress of the operation a series of hearing-tests to determine the location of the principal obstacle to sound-transmission and determine the extent to which surgical interference was advisable, the plan of "exploratory tympanotomy" was devised. Dr. Blake expressed a preference, when possible, in cases of non-suppurative disease of the middle ear, to begin with exploratory tympanotomy, which can be performed without general anæsthesia, leaving it to be determined by the examination and tests made during the operation as to whether the stapes can or shall be removed or not. In suppurative cases it is preferable to first perform synechtomy, tenotomy, and crural circumcision with, if necessary, the additional application of an artificial drum, allowing a proper time-limit for the determination of the effectiveness of these procedures before submitting the patient to the final operation of stapedectomy. (Medical News, July 29, 1893, p. 135.)

SUPPURATIVE OTITIS.—Excision of Ossicles in. [Dr. Milligan appends the following conclusions to a paper, the substance of which will be found at p. 365 of this volume:] (1) That when in those cases of chronic suppurative middle-ear disease, accompanied by perforation of Shrapnell's membrane and the presence of parietal or ossicular caries, the most careful local treatment has been carried out, and has failed to effect a cure, the operation of excision of the membrana tympani and of the ossicula auditûs should be performed. (2) That, as a rule, purulent inflammation ceases, or, if not, is at least greatly reduced in intensity, after the performance of the operation. (3) That such symptoms as vertigo, tinnitus, &c., are either cured or greatly relieved. (4) That recurring attacks of earache are checked. (5) That the hearing power is either improved or remains as before. (6) That in a few cases the hearing is rendered rather worse. (7) That in cases of chronic attic disease, with normal atrium, the only perforation being in the membrana flaccida Shrapnelli, the performance of this (or some similar) operation is probably the only means of cure. (British Medical Journal, September 9, 1893, p. 566.)

TROPACOCAINE.

Tropacocaine is more reliable and deeper in its action than cocaine, and the anæsthesia it produces lasts a little longer. Unlike cocaine, it anæsthetises inflamed tissue—at least, more deeply than does that salt. There is complete absence of the haze over the cornea which is so characteristic of cocaine anæsthesia. This was specially appreciated when needling. The strength of the solution depends on the requirement. For general use 2 or 3 per cent. is sufficient, and a 5 per cent. solution may be used with safety when anæsthesia of the deep-seated parts is required. Solutions of tropacocaine made with distilled water keep well, and retain their strength for months. One solution (3 per cent.), prepared in January last, although now a little cloudy, has not lost its activity. So far no fungus has been noticed growing in the solutions. With the exception of the one case mentioned in which the 10 per cent. solution was used, tropacocaine gave rise to no disagreeable symptoms. It practically has no mydriatic action ; neither is it hæmostatic. But it certainly did not give rise to "intense hemorrhage," as was the experience of Seifert. I am inclined to think that cocaine will eventually be replaced by tropacocaine when its advantages are fully understood. Even if it were only for its antiseptic properties, the new anæsthetic should be given the preference. The price is not prohibitive, and increased demand will place it within the reach of all.—Dr. G. Ferdinandes, p. 356. (British Medical Journal, June 24, 1893, p. 1318.)

OBSTETRICS AND GYNÆCOLOGY.

BREECH PRESENTATIONS.—Their Management.

Etienne (*Arch. de Tocol. et de Gynæc.*, May, 1893) reports a series of 50 breech labours, with viable fœtuses, with no infantile mortality—a remarkable result, considering the usually accepted mortality of 10 per cent., or even of 25 to 33 per cent. (Hegar) in primiparous cases. Etienne's cases were conducted in the Nancy Lying-in Hospital between 1883 and 1891 ; there were 76 cases in all ; but 26 were rejected in which the fœtus was either dead ante-partum or non-viable. The secret of the success in the Nancy Clinic is a skilfully exerted suprapubic pressure during the extraction, whereby the extension of the head and the slipping up of the arms are prevented. (This is no new manœuvre ; it has long been taught in the best schools, and its importance is occasionally emphasised in journal articles. It is probable that the usual mortality, while partly due to a general want of obstetric skill, is almost entirely attributable

to the want of intelligently applied vis a tergo while the operator is making tractions on the child's legs and trunk. Unquestionably, well-directed pressure in the proper axis on the fundus uteri through the abdominal walls will almost invariably prevent the extension of the head and the upward displacement of the arms; and consequently it should be an invariable rule of practice that the obstetrician should have with him, during the second stage of breech cases, a skilled assistant. It is not enough to send for assistance after the arrest of the head has taken place, for then it is too late. We are confident that if the above rule is conscientiously followed the fœtal prognosis in breech cases will be greatly improved.—Rep.) (Dr. Green's report in Boston Medical and Surgical Journal, August 3, 1893, p. 118.)

DOUCHING IN THE PUERPERAL STATE.—Its Dangers.

With regard to the methods of antiseptic midwifery, Dr. Cullingworth desired to emphasise the danger, in using douches, of carrying infectious micro-organisms from the lower part of the genital tract into the upper. Owing to this danger he was of opinion that the douche ought never to be administered except by the doctor himself, or by a thoroughly skilful and well-trained nurse. Fortunately, the douche was a non-essential; in fact, so far as private practice was concerned, it was not at all certain that the patient was not safer where no douche was used. Far too much attention had been paid to douching to the neglect of the really important measures. With reference to the danger of sublimate poisoning alluded to by Dr. Barnes, he would remind the Section that no case of poisoning had occurred where the douche had been omitted. Poisoning by sublimate absorption could only take place when the solution was used internally. Employed as a disinfectant of the practitioner, the nurse, and the instruments, the legitimate objects for disinfection, corrosive sublimate was absolutely safe, and there could be little doubt, from the comparative observations made by Dr. Boxall at the General Lying-in Hospital, that corrosive sublimate was, for obstetrical purposes, the most efficient antiseptic at present known. Dr. Barnes had expressed a desire that an authoritative code of instructions should be drawn up for the use of antiseptics in midwifery. Dr. Cullingworth was glad to inform the Section that such a code had been prepared by the Medical Committee of the General Lying-in Hospital, York Road, Lambeth. The Committee consisted of Dr. John Williams, Dr. Champneys, Dr. Herman, and himself. The code had been printed by the Board of Management, and could be obtained from the

Secretary of the hospital at the trifling cost of one penny. (Discussion on Puerperal Septicæmia, British Medical Association, 1893, British Medical Journal, September 16, 1893, p. 627.)

FIBROID DISEASES OF THE UTERUS.—Chloride of Zinc in.

Condamin (*Lyon Méd.*, May 28, 1893) believes that hysterectomy for fibroid tumours of the uterus is no doubt a very brilliant operation, but nevertheless very dangerous. He repudiates utterly the doctrine current amongst a certain school of operators that the disease always demands the operation. In many subjects the disease develops late in sexual life, and causes no trouble excepting watery discharge and hemorrhages. The right treatment is to suppress these symptoms. This Condamin effects by the application of crayons of one part chloride of zinc to three of rye flour well into the uterine cavity, laying stress on the chief precaution, which is that the cervix be not cauterised. The dangers of chemical caustics concerns young women likely to bear children. The introduction of the caustic requires care. The smaller and more normal the uterine cavity, the more suited will the case be for treatment. The cervix is well dilated by Hegar's instruments. Then the crayon is passed, on a long holder, into the cavity. If this be too slowly or clumsily done the internal os will contract, and a fresh dilatation will be needed. In withdrawing the holder the crayon must be pressed with a Playfair's probe, lest it should slip into the cervix. Lastly, the cervix is plugged with iodoform gauze, and the patient is placed on her face for three or four hours. Severe pain is often experienced for the first twenty-four hours, and the temperature sometimes rises to 104°. The patient must be kept in bed for a week or ten days. By about the twelfth day the cauterised tissues begin to come away; if they are scanty, a smaller crayon should be inserted, with similar precautions. About twenty cases have been treated in this manner, but Condamin admits that, although the symptoms have in all improved, more time must elapse before any conclusions can be drawn as to the value of the treatment. (Epitome of the British Medical Journal, June 10, 1893, p. 91.)

GONORRHŒA IN WOMEN.—Treatment.

Dr. Bröse treats acute cases by douches of chloride of zinc or sublimate, the urethra receiving 1 to 5 per cent. solutions of nitrate of silver by injection. In local treatment the cervix demands attention, and the application of strong solutions of chloride of zinc (to 50 per cent.) has been followed by the best

results, although the practice is not without danger. Intra-uterine applications are likely to be followed by salpingitis and pelvic peritonitis, and are rarely necessary. Relatively dangerous is the washing out and injection of the uterine cavity with remedies designed to disinfect it; a harmless and proper method is the application of caustic remedies upon a sound wrapped with cotton, or in the form of pencils; or the method of Fritsch may be employed—mechanical dilatation of the uterus and packing the cavity with strips of gauze wet with a 2 per cent. solution of nitrate of silver, repeated daily for two weeks. The chronic urethritis is treated through the endoscope by a 5 to 20 per cent. solution of nitrate of silver.—*Deutsche med. Wochenschrift*, 1893, No. 18, S. 419. (American Journal of the Medical Sciences, August, 1893, p. 218.)

MALIGNANT DISEASE OF THE UTERUS.

Dr. Evelyn Porter concludes an important paper on this subject with the following summary of his views:—(1) A knowledge of the gross and microscopical appearances of malignant growths of the uterus is essential to their proper diagnosis and operative treatment. (2) A thorough knowledge of the symptomatology, especially in the early stages, should be attained by every practitioner of medicine, and the slightest existing carcinoma should demand immediate physical examination and consultation with the surgeon. (3) A microscopical examination should be made of any tissue simulating malignancy. (4) The entire uterus should be removed in every case of malignant disease where there are evidences of the growth being confined to the uterus, and the sooner the operation is performed the greater are the chances of immediate success and ultimate cure. (5) Vaginal hysterectomy is the operation which should be resorted to in all cases where the uterus is small enough to be removed *per vaginam*, and in its performance ligatures should be applied to the larger vessels to the exclusion of clamps. (6) In removing large tumours by abdominal hysterectomy the écraseur should be applied and the bulk of the tumour removed before the ligatures are applied. (7) Laparo-vaginal hysterectomy should be performed where serious complications in the way of pelvic inflammation and adhesions exist. (8) The operations suggested by Zuckerkandl and Kraske, on account of their formidable character, should be performed only in exceptional cases, if at all. (9) Where the disease has extended to the parametrium or extensively into the vaginal wall, in no case should hysterectomy be resorted to. (10) High amputation should be performed only as a palliative measure. (11) In curettement for cancer of the uterus the sharp curette should be employed. (12) After all operations for malignant disease the patient should be kept

under observation for as long a period as possible. (New York Medical Journal, December 17, 1893, p. 684.)

METROSTAXIS AND MENSTRUATION AFTER OPERATIONS ON THE BROAD LIGAMENT.

Professor Sinclair appends the following conclusions to a paper on the subject:—(1) The hemorrhage, after removal of the ovaries and tubes, whether immediate or remote, depends almost purely on anatomical, not physiological, considerations. If the arteries are tied, even though the tubes and part of the ovaries be left, involution will follow in the body of the uterus, and menstruation will cease. If the arteries are not tied there will be profuse metrostaxis, and menstruation will continue, it may be for many months or years, even when the ovaries and tubes have been carefully removed. (2) If this be true, then it follows that the Fallopian tubes have no special physiological function in menstruation; they are neither "the cause" (if any meaning can be put into the term) nor "the starting point" of menstruation. (3) A practical deduction from the whole matter is that in operating on the broad ligament for the purpose of bringing on the menopause or involution of the uterus, the operator should endeavour to tie the chief branches of the ovarian arteries. Especially is this the case when the object sought is to bring about retrograde changes owing to the presence of small fibroid tumours of the uterus. There is little or no danger of starving the uterus by cutting off the blood-supply to a dangerous extent; the danger is almost always that too little will be done, and the object sought for only imperfectly attained. (British Medical Journal, May 27, 1893, p. 1107.)

PELVIC HÆMATOCELE.—Treatment.

If, as stated by Gusserow, the hæmatocele is so large as to be mechanically disturbing or absorption ceases, or the circumstances of the patient do not permit slow absorption, or prolonged rest afterwards, or if the contents become infected as indicated by symptoms of septicæmia, the tumour should be opened, emptied and drained without delay. Whether the incision should be made through the abdominal, vaginal or rectal wall must be determined in the individual case, with a general tendency in favour of vaginal drainage. The great success which has followed the vaginal incision, the tumour being opened and the clots removed, has been repeated so many times by so many operators that it is unquestioned. This too, without waiting for any of the possibilities which make the operation demanded. It has often been done in the early history of the tumour, to save time in healing or to obviate

possible repeated or continual hemorrhage. Healing may be even more rapid than after abdominal incision, days only elapsing between the operation and the recovery of the patient. The comparative merits of the various methods of treatment can only be determined after the lapse of time. The older statistics with reference to treatment by purely medical methods or by puncture, even by incision, are no absolute standard of what may be done now, with a better understanding of the etiology of the condition, a surer knowledge of the complications which may arise and a more complete appreciation of their timely prevention. The recommended early abdominal incision is not yet sufficiently proven to be without serious after-effects in the production of hernia, or in the formation of abscesses which may lead to intestinal obstruction or may act in favour of producing a subsequent intra-peritoneal hemorrhage, from the same course, namely, ectopic gestation. The comparative results of other treatment than laparotomy as shown by Zweifel a few years ago, are as follows:—Of 144 cases treated expectantly, 16·6 per cent. were fatal: 66 cases treated by puncture, 15·1 per cent. were fatal; 30 cases treated by vaginal incision, 10 per cent. were fatal. The medical treatment of intra-peritoneal hemorrhage, when feasible, permits the patient to recover without operation and renders possible an easy operation when necessary, and one not demanding especial skill. Laparotomy for intra-peritoneal hemorrhage is unnecessary in a large number of cases and when undertaken substitutes a severe for a simple operation, and one requiring considerable technical skill, therefore not generally applicable. (Prof. R. H. Fitz, Boston Medical and Surgical Journal, June 22, 1893, p. 621.)

PELVIC PERITONITIS.

At the Obstetrical Society, on October 5, 1892, Dr. Cullingworth read a paper on the "Value of Abdominal Section in certain cases of Pelvic Peritonitis," based on a personal experience of 50 cases, of which the following is an abstract:—The question considered in the paper was whether surgical interference was or was not frequently called for in cases of pelvic peritonitis. Dr. Cullingworth replied to this question in the affirmative, and supported his opinion by a detailed record of 50 cases in which he had himself operated. The paper was accompanied by a table, showing for each case the symptoms, the physical signs, the diagnosis, the actual condition disclosed at the operation, the nature of the operation performed, and the results, immediate and (where possible) remote. The cases were arranged in the order of their occurrence. The cases included the whole of Dr. Cullingworth's experience of the operation up to the end of February, 1891, and are classified

as follows:—Suppurating salpingitis, 20; non-suppurating salpingitis, including 6 cases complicated with suppurating ovarian cyst, 12; tuberculous disease of Fallopian tubes, 2; pelvic abscess, seat undetermined, 3; pedunculated retro-peritoneal cyst, with abscesses in walls, 1; tuberculous abscess in abdominal wall, with masses in pelvis (tuberculous glands) and miliary tubercle of peritoneum, 1; hæmatocele, 2; hæmato-salpinx with hæmatocele, 3; hæmatoma of broad ligament, 1; broad ligament cysts (with ovaritis 2, with hydrosalpinx 1), 3; encysted peritonitic effusion, 1; retroflexed uterus with fibroids, 1—total, 50. He then proceeded to detail his cases. There was strong presumptive evidence of gonorrhœa in a large proportion of the cases, and in 4 cases the proof seemed complete. Nine of the cases died, a mortality of 18 per cent. Seven of the deaths were due to peritonitis (probably septic), 1 to acute nephritis, and 1 to collapse on the eleventh day. Of the fatal cases, 1 was tuberculous disease of the tubes, 2 were purulent salpingitis, 1 was double salpingitis with old hemorrhage, 2 were suppurating tubo-ovarian cysts, 1 was retro-peritoneal suppurating cyst, 2 were old peritonitis with serous cysts of the broad ligament. As experience increased, the mortality became sensibly diminished. Hemorrhage, to a greater or less extent, existed in 12 of the 32 cases of salpingitis. In 5 cases there was amenorrhœa, in 3 dysmenorrhœa, whilst in 12 the menstrual function was undisturbed. In 16 cases the removal of the appendages was complete, in 23 partial. Of the former 15 recovered, of the latter 17. The peritoneum was flushed in 22 cases, of which 18 recovered. Drainage was employed in 47 out of the 50 cases. In 2 cases a fæcal fistula formed, which in each instance healed spontaneously. In 5 cases the patients complained some time after the operation of more or less persistent pain. A sinus existed in 6 of the cases when the patients left the hospital; in 2 of these it had not healed when the patients were last seen. In 4 cases a hernia occurred in the line of incision. He pointed out that a very slight amount of swelling of the mucous membrane suffices to block the tube at its uterine end; and if pus be present in the tube it must then either remain pent up in the tube or be poured out through the fimbriated end into the peritoneum, in either case becoming a source of danger. Salpingitis being a painless affection, the wall of a pyosalpinx may be on the point of perforation before an acute attack of peritonitis gives warning of the presence of serious disease. Suppurating tubo-ovarian cysts are usually the result of ulceration on the tubal side of the adhesion between the tube and ovary, but in exceptional cases they result from ulceration on the ovarian side. One of the chief risks in the operation for the separation and removal

of inflamed tubes is the liability to mistake thickened and adherent intestine for diseased tube. The way to avoid error is to trace the tube from its uterine end outwards. The exceptional instances in which pain persists after operation for gross lesions of the uterine appendages are generally to be explained either by omental or intestinal adhesions, or by the coexistence with the actual disease of a neurotic condition, of which the pelvic pain is a mere local expression. Tubal disease in the virgin is generally, if not always, tuberculous. Hydrosalpinx, in the great majority of cases, is merely a form of retention cyst due to occlusion of the distal end of the tube from without. Simple collections of serum, both large and small, were apt to form beneath the peritoneum covering the tube and broad ligament in chronic cases of pelvic inflammation, especially in those of very long standing. Probably the best treatment of these cysts, after exposing them and making certain of the diagnosis by abdominal section, is simple puncture and evacuation, the risk of removal being, in Dr. Cullingworth's experience, out of proportion to their importance.

Dr. John Williams said that he felt personally indebted to Dr. Cullingworth for bringing this paper before the Society, for although he differed widely from him both in regard to his conclusions and practice, he believed that the discussion of the paper would help to place the practice of opening the abdomen for pelvic disease on a sounder and more reasonable basis than that on which it rests at present. The first difference Dr. Williams had with Dr. Cullingworth was as to the title of the paper. He thought the title was misleading, for on examining the cases he found that 24 of the 50 were of ovarian or other cysts which were simple, inflamed or suppurating, and with regard to the propriety of the removal of these there were no two opinions. In these cases the pelvic imflammation may have been independent of the new growth, although it was well known that inflammation was a very frequent consequence of the presence of cystic disease in the pelvis. Then, again, there were 6 cases of pelvic abscess in which the only reasonable plan of treatment was to open them, let out the pus, and drain them. It might be a matter of opinion whether the opening should be made from the vagina or through the abdominal wall. In some cases the way through the vagina would probably have been better, while in others the abdominal method would be preferable. There were, moreover, 10 cases of hæmatocele, 1 with ruptured cyst of the broad ligament and 1 suppurating, and 1 case of hæmatoma of the broad ligament. The case in which suppuration had occurred should have been treated like an abscess, but it is probable that the other 9 would have got well without operative interference, for death from hæmatocele

is extremely rare. He had an observation to make with regard to the result. The mortality was high, but he did not think it was higher than the mortality from these operations throughout the country generally. The cases, or many of them, presented great difficulties to the operator, and it was in such cases that the mortality was high in skilled hands. He had pointed out that skill in operating favoured a low mortality, and that one great secret of a very low mortality was operating upon cases in a condition as near to that of health as possible. There was a mortality which necessarily arose from the difficulties of the operation, and this mortality was eliminated when operations of this kind were undertaken for trivial deviations from health. When considering the mortality of the operation that from the disease should be borne in mind. He had seen 2 cases only of death from ruptured tubes or abscesses, and he calculated that with a mortality of 18 per cent. the mortality of the operation was several hundred times greater than that of the disease. Then as to the permanent result: 9 died after the operation and 1 within twelve months of cancer of the stomach, 14 were seen a year or more after the operation, 8 appeared not to have been seen. Then as to the permanent result: were the cases operated upon cured? Nine died after the operation, and 1 of cancer of the stomach twelve months after operation; this left 40 to be accounted for. Of 14 only of these was anything known after the lapse of twelve months from the date of operation; of 8 there was no account at all after they left the hospital; this left 32.

Mr. Alban Doran considered that it was good surgery to ensure the escape of pus and the other products of inflammation, and that in so far as that object was gained Dr. Cullingworth's practice was sound. Parametric abscesses required similar treatment; it was not sufficient to make a mere puncture; a free incision should be made through an abscess which pointed anteriorly, the cavity should be washed out, and then explored as carefully as the peritoneal cavity is explored in an ordinary abdominal section. Then there would be no fear of leaving a deeper collection of pus unopened. He himself treated suppurative parametritis as a matter for the operating table, and not for mere puncturing and poulticing. In a recent case where the appendages and parametrium were inflamed he left the tubes and ovaries alone after free opening of abscesses. Recovery was perfect, all local signs of tubo-ovarian disease steadily disappearing. Dr. Cullingworth overlooked one cause of persistence of pain after removal of the appendages. The stump was usually more or less unhealthy, like the parts cut away, and the ligature might cause much irritation. The stump of a true ovarian tumour, it must be remembered, was usually

made up of tissues free from inflammatory changes, hence it bore ligature well. When an abscess was opened without removal of appendages, then, if other parts were healthy at the time, recovery was very complete ; no stump and no ligature remained behind. Mr. Doran then referred to MM. Pean and Segond's practice of vaginal hysterectomy for the cure of pelvic suppuration. British surgeons would hardly adopt that operation.

Dr. Champneys shared in the feelings of other speakers who had objected to the title of the paper. Pelvic peritonitis was a complication of a very large number of known diseases, and he thought it was evident that a good many of these were capable of diagnosis, and had indeed been diagnosed before operation. Among these were ovarian tumours, tubo-ovarian cysts, and hæmatoceles. He thought it was of some importance to point this out, because one of the chief objects of the paper was to show that abdominal section was often called for in pelvic peritonitis. In the ordinary sense of the term this was not the case, nor did the cases in the paper bear out that view. But if the title of the paper were retained he would ask, Who in that room had ever seen 9 deaths from pelvic peritonitis, or even 4 deaths (the number of fatal cases after operation in the paper and appendix respectively)? Pelvic peritonitis was one of the commonest of all affections of the pelvis, and the cases were rarely dangerous to life. As regarded the duration of the disease before the operation, he did not think that mere lapse of time proved the necessity for operation. Nothing was commoner than for patients to go about for months with this affection, or to lie up after a fashion at home. When they came under observation the temperature was raised and there was pain, both of which ceased on strict confinement to bed, and might never return after proper medical treatment. As regarded the imminence of the escape of pus noted in some cases in the paper, he did not think there was often any cause for alarm even if this took place ; the pus escaped, an ordinary perimetric abscess formed (often with great rapidity), and its evacuation was followed by cure. Hæmatocele very rarely justified an operation. He did not agree with the opening of pelvic abscesses by abdominal section except in rare cases. The advantage of abdominal section was the opportunity which it gave of exploring, but the risk to life was considerable; drainage was in opposition to gravitation, and the risk of ventral hernia was great, for sometimes these cases necessarily required drainage for a long while. The advantage of improved antiseptics in abdominal opening was more theoretical than practical, for it was quite easy to get excellent surgical results in vaginal operations if we knew how to manage them. On the whole,

then, he was still unconvinced that pelvic peritonitis required abdominal section except in rare and exceptional cases.

Dr. Playfair said that none of the previous speakers seemed to him to have sufficiently recognised the great value of Dr. Cullingworth's paper. He felt that his conclusions were in many respects open to criticism, nor could he at all endorse many of them. As to the general principle that when marked structural disease of the uterine appendages existed, connected with suppuration, a free exit should be given to the pus, and that such exit was often best obtained by laparotomy, everyone nowadays would probably agree. That was consistent with sound general surgical principles. He remarked on Dr. Cullingworth's extreme partiality for the drainage-tube, which was used in 47 out of the 50 cases. In his own operations he hardly ever used it, and yet he certainly should have no fear of contrasting his results with those which Dr. Cullingworth had given. He felt quite confident that Dr. Cullingworth had resorted to drainage with an altogether needless frequency. (The Lancet, October 15, 1892, p. 881.)

SYMPHYSIOTOMY.—Its Indications and Limits.

Symphysiotomy is indicated in the flat pelvis with a true conjugate ranging between 67 and 88 mm. ($2\frac{5}{8}$—$3\frac{1}{2}$ in.), but it is difficult below 70 mm. ($2\frac{3}{4}$ in.). On the other hand, normal birth, forceps, or version is possible down to a true conjugate of $2\frac{3}{4}$ in. (7 cm.), if the child is small and the head is easily moulded; but both forceps and version give, in general, disastrous results with a conjugate below $3\frac{1}{4}$ in. (8·5 cm.). There is a great mortality for both mother and child, and if the child survive, there is danger of its being idiotic. The safe and proper field for symphysiotomy with flat pelvis lies, therefore, between $2\frac{3}{4}$ and $3\frac{1}{2}$ inches. Theoretically the lower limit is found by considering that the distance between the centre of the promontory and the end of the pubic bone is elongated 14 mm.; that the head enters between the bones to a distance of 6-8 mm. which together makes 20-22 mm. ($\frac{3}{4}$-$\frac{7}{8}$ in.); that the biparietal diameter of the fœtal head is 95 mm. ($3\frac{3}{4}$ in.), which may be reduced to 88 mm. ($3\frac{1}{2}$ in.), and that, consequently, by substracting 21 from 88 and 95, the operation is difficult at 67 mm. ($2\frac{3}{4}$ in.), easy at 74 mm. (3 in.). In the generally contracted pelvis I think it would even be proper to place the upper limit at 10 cm. (4 in.) c. v. Lepage has performed the operation in the case of a tumour partly obliterating the cavity of the pelvis. This is proper with an exostosis or a pedunculated fibroid that cannot be pushed out of the way. With an ovarian cyst tapping is preferable. Jewett operated on a patient in whom all else was obviously ample, but whose outlet was

narrowed from side to side, the bisischial distance measuring about 3 inches. Michael proposes, as it would seem on good grounds to peform the operation in mento-posterior face presentations, in which the chin cannot be rotated forward. (Mr. Garrigues, American Journal of the Medical Sciences, April, 1893, p. 401.)

[See also article by Dr. Garrigues on "Symphysiotomy: Modus Operandi" at p. 383 of this volume of the *Retrospect.*]

UTERUS, NEW METHOD OF TOTAL EXTIRPATION OF, FOR CANCER.

Herzfeld (*Centralblatt für Gynäkologie*, 1893, No. 2) describes the following modification of the Hochenegg-Kraske operation, which he has adopted successfully in several cases:—The patient being in Sims's position, an incision is made extending from the right posterior inferior spine, along the median line of the sacrum, to a point half an inch from the anus. The coccyx is removed, and, if necessary, the lowest sacral vertebra. The rectum being exposed, is drawn over to the left. The vagina can now be separated, if it is desired to resect a portion of it. Douglas's pouch is opened, the index finger is carried over the fundus uteri, and the organ is hooked backward. It is now possible to actually inspect the whole of the broad ligaments, the vesico-uterine fold, and the ureters, and to feel the uterine arteries. Adhesions are easily separated under the eye. The advantages of the lateral position are now seen, since in Kraske's operation the peritoneum is carried forward, so that it is difficult to reach and incise it. The broad ligaments are ligated in three portions, any infiltrations at their lower borders being readily dissected out. The bladder is next separated. The peritoneal edges are now sutured, including the stumps of the broad ligaments, which are thus fixed extra-peritoneally. The peritoneal cavity is thus closed before the vagina is opened, so that no cancerous or septic matter can enter the abdomen. The uterine arteries are next ligated, with their vaginal branches if necessary. The ureters can easily be felt and avoided. The vaginal fornix is then opened, and the uterus is removed, the vaginal wound being closed with Lembert sutures, so that the raw edges are turned into the vagina. There remains a conical wound a couple of inches in depth, the apex of which is at the line of peritoneal sutures; this is tamponed lightly with iodoform gauze and the external wound is closed, leaving a small opening at its lower angle for drainage. The advantages of this method of total extirpation over Hochenegg's are the ease with which Douglas's pouch can be opened, and the fact that the peritoneal cavity is closed before the vagina is incised, while the operation in general is easier and less bloody. It is

especially adapted to cases in which the vagina is involved and the uterus is fixed by adhesion, while the broad ligaments are still free from carcinomatous infiltration. (American Journal of the Medical Sciences, April, 1893, p. 477.)

VENTROFIXATION OF THE UTERUS.

In cases of retroflexion and also of prolapse unamenable to any of the ordinary methods of treatment, the best and certainly the simplest method of surgical procedure is to fix the anterior surface of the uterus directly to the peritoneum, just above the pubes. For this purpose open the abdomen by an incision about $2\frac{1}{2}$ inches in length, and pull up the uterus to the wound. It is only necessary to introduce two fingers. Any adhesions in so doing must of course be separated. The uterus must then be fixed in its new position by sutures. These should not be so deeply placed as to reach the mucous membrane. Silkworm-gut is the best material. Several sutures must be passed, and one or two of them must reach as low down as possible, so as to fix nearly the whole anterior surface to the peritoneum. This operation not only cures retro-displacement, but also prolapse. Of course, these silkworm-gut sutures are buried by the closure of the abdominal wound, and are never seen again. Dr. Leith Napier and Dr. Schacht, from whose paper this is abbreviated, gave twenty illustrative cases, amongst which there were unfortunately two deaths. This, we think, is a much higher mortality than may be usually expected, in fact the mortality ought to be almost *nil*. In suitably-selected cases we believe that there is a wide field for the employment of uterine ventrofixation or "hysteropexy." A most interesting fact is this that two of the cases became pregnant, one was delivered at full term, and the adhesions to the abdominal wall did no harm, and the uterus remained fixed after delivery. In the second case the patient miscarried at the third month without any evident cause, the uterus remaining fixed. (British Medical Journal, October 14, 1893, p. 838.)

Medicine.

GENERAL MEDICINE AND THERAPEUTICS.

Art. 1.—PERIODS OF INCUBATION AND INFECTIVITY.

[The report of a Committee appointed by the Clinical Society of London to investigate the Periods of Incubation and Contagiousness of Certain Infectious Diseases. The Report is a supplement to Vol. 25 of the Society's Transactions.]

Diphtheria—Incubation Period.—Sixty detailed communications containing 87 separate cases, besides other data, were analysed for the purpose of the report. In 27 instances the exposure to infection was for a short period on a single occasion, and in all of these, with one exception in which the facts were rather doubtful, the period of incubation was seven (7) days or less; in 63 the period was 4 days or less. If to these are added certain other cases in which the dates at which exposure commenced are positively known, and the sets of cases are taken together, the result is reached that in 30, or 58 per cent., the period of incubation cannot have been more than 4 days, while in 45 or 87 per cent. it cannot have been more than 7 days. The general conclusion on this head is that the incubation period of diphtheria does not as a rule exceed 4 days, and is more often 2 days than any other period. Not infrequently it extends to 5, 6, or 7 days, but it is doubtful whether it ever exceeds the last named period.

Infective Period.—In the large majority of cases reported to the committee infection was attributed to personal intercourse with a sufferer or convalescent. A person may be infected by a patient suffering from diphtheria (*a*) in the incubative stage; (*b*) during the developed attack; (*c*) for a period of long but uncertain, and probably varying, duration after apparent recovery. In such cases of late infection some unhealthy condition of throat will, as a rule at least, be found to have persisted, or possibly to have recurred. The evidence further showed that the infective principle of diphtheria can be retained by clothes, carpets, and other fomites for months, perhaps years. It appeared also that the infection of diphtheria may be derived from cases so mild that the patient never comes under medical treatment, or presents symptoms so little characteristic that their true nature is not recognised even after medical examination.

Typhoid Fever—Incubation Period.—The conclusions under this head are founded on 70 cases and various reports of epidemics. In 14 cases the infection was traceable to a single short exposure to the liability to infection ; in 15 other cases the evidence showed that the period of incubation must have been less than 14 days. It is held that the period of incubation in typhoid fever may vary within rather wide limits. "The interval between exposure to infection and the development of distinct symptoms is probably most often 12 to 14 days ; it is not very infrequently 9 or 10 days, occasionally 8, and possibly even less. In rare cases it is prolonged to 15, 18, or even 23 days."

Conditions as to Infection.—A case of enteric fever remains infective throughout the whole course of the disease, from the date of the earliest symptoms of illness until convalescence has been established for at least a fortnight. Evidence is afforded that infection can be conveyed by fomites, and retained in them probably for at least two months. Considerable space is given to a discussion of the conditions under which the infection of this disease is conveyed by water and by milk ; it is found that an epidemic due to contamination of milk may be expected to cease at or about the end of the second week after the arrest of the contaminated supply. An epidemic due to contamination of a public supply from large reservoirs is found to come to an end as far as the occurrence of new cases is concerned as a rule not later than the fourth week after the source of specific pollution has ceased. If the epidemic be due to the ingestion by a population of infected well water, the disease may continue in the community for a much longer period after the pollution has ceased, if the use of the well be continued.

Epidemic Influenza.—The number of instances available for the purpose of the *Report* is somewhat restricted. The conclusions reached are as follows: (1) the incubation period varies from one day, or possibly a few hours less, to 4 or 5 days, but the usual period is 3 or 4 days. (2) A patient is capable of conveying infection throughout the whole course of the disease from the onset of the earliest symptoms, and even after convalescence has been sufficiently established to enable him to resume ordinary occupations a week or 10 days at least after the commencement of his illness.

Measles—Incubation Period.—Owing to the uncertain duration of the period of invasion, it was found necessary to take the day of the first appearance of the rash as the fixed date from which to calculate. The *Report* contains 36 instances in which the exposure to the source of infection was for a short known period only a few minutes or hours. In 19, or 52 per cent., of

these cases the subsequent interval before appearance of the rash was exactly 14 days. In 28, or 78 per cent., the period was 13, 14, or 15 days. In three cases only is the period believed to have exceeded 15 days. The evidence afforded by cases in which the period of exposure was not precisely limited confirmed the conclusion that 14 days is the usual period between the exposure and the appearance of the rash. Intervals of 16, 17, and 18 days probably occur occasionally, and in considering the question of the isolation of susceptible persons who have been exposed to infection, the possibility of such periods cannot be left out of account. In rare cases the interval may be as short as seven days. The duration of the primary or catarrhal stage is not constant, and does not bear any relation to the total duration of the interval between exposure and eruption. It is concluded that the true incubation period of measles, that is, the interval between exposure and the earliest symptoms, is in a majority of cases 9 or 10 days, but may be as short as 5 or even 4 days, and as long as 14. A susceptible person who has been exposed to the infection of measles must be kept under observation for a full fortnight, and be found free from fever and catarrh at the end of that period before it can be said that the disease has not been contracted.

Period of Infectivity.—Cases are quoted to show that measles is infectious not only during the primary stage and throughout the acute attack, but also in some cases after convalescence has been well established, but no period beyond three weeks after the appearance of the rash was met with where disinfection was practised. There was evidence that the infection may be retained by fomites for a short time.

Mumps.—The incubation period of mumps is generally said to be two or three weeks, but the Committee found that it approaches more nearly, as a rule, to the latter than to the former. In 14 cases of single short exposure the interval was three weeks, a day or two more or a day or two less in 10. From a study of a large connection of cases in which the date at which exposure ceased was known the conclusion is reached that the interval between the exposure to the source of infection and the onset of parotitis is most commonly about three weeks, a day more or a day or two less. It is occasionally as long as 25 days, and more rarely as short as 14 days.

The chance of infection diminishes progressively from the onset of the parotitis, and has ceased in two weeks probably and in three weeks almost certainly ; it is very infectious during the prodromal stage, which is of uncertain duration, and may last as long as four days. Since a person who is about to suffer from mumps is not infectious until at most four days before the

parotitis appears, it is possible, by quarantining a person first seen ten days after his exposure to infection, to ensure that he shall not infect others: further, since the incubation period is most commonly 19 to 21 days, and is sometimes 25 days, it is well worth while to quarantine a person who has been exposed to infection a fortnight or even three weeks earlier.

Rubeola (Rötheln)—Incubation Period.—The opinion is expressed that the incubation period of rubeola varies very considerably; the twelfth to the eighteenth day after the cessation of exposure is the time at which the rash is most likely to appear in epidemics in schools when a patient is isolated as soon as the rash appears. On the whole, the conclusion is that the incubation period of rubeola is, as a rule to which there are many exceptions, some period more than two and less than three weeks, and that 18 days is probably the usual period. In a considerable number of cases it is a day or two less than two weeks, in a few it is only eight or nine days, and it is possible that, in a small number, it may be as short as six or five days. Since a person who has been exposed to the infection may not develop the disease for three weeks, or even 22 or 23 days, the quarantine period must not be less than the longer of these.

Period of Infectivity.—The patient is infectious two or three days before the rash appears, and also while the rash is out, but thereafter infectivity diminishes rapidly, and ceases altogether in a week in mild cases, and by the time desquamation is over in the more severe; in the former class isolation for a week, followed by a bath, and disinfection of clothes; in the latter isolation for a fortnight, followed by disinfection, is recommended to prevent the spread of epidemics in schools. At the same time, it is pointed out that there is little evidence that the infection is long retained by clothes.

Scarlet Fever.—This chapter of the *Report* is founded on the study of nearly 140 cases and many reports of epidemics.

Incubation Period.—In 34 cases the exposure to infection was for a short period measured by minutes or at most hours, and in twelve of these the incubation period cannot have exceeded 48 hours. In nineteen cases, or more than half, the incubation period was some period less than three days, and in no case was the appearance of the eruption delayed beyond the eighth day. If to these cases be added certain others in which the exposure to infection began at a known date, and continued thereafter until the symptoms developed—cases in the same house, for instance—then a total of 106 cases is obtained, which is divided as follows: five cases were attacked within the first 24 hours 23 in the second, 24 in the third, 18 in the fourth, 10 in the fifth 12 in the sixth, 9 in the seventh, and 5 in the eighth.

Examination of the facts in connection with these cases leads to the final conclusion that the incubation period is usually some period between 24 and 72 hours; it is occasionally less than 24 hours, frequently more than the longer limit above mentioned. Periods of four, five, and six days are often to be met with, and of seven days occasionally, but it is very doubtful whether the period of incubation is ever extended to eight days. When the infection is conveyed in milk the period would seem to be, as a rule, short—2 days or less.

Period of Infectivity.—Infection persists from the onset of symptoms until long after convalescence has been established; certainly as long as there is any desquamation, and may still be active eight weeks after the onset of the disease. It is readily preserved and conveyed in fomites.

Quarantine.—A person who has been exposed to the infection of scarlet fever, if at the end of seven clear days he is free from fever and from sore throat, and does not show any signs of illness, may, after disinfection of his clothes and other fomites, be pronounced safe.

Surgical and Puerperal Scarlet Fever.—There is no proof that the period of incubation is shorter or longer in persons who have met with an injury, nor in women who have recently been delivered, but there are grounds for believing that the occurrence of labour or of traumatism may determine the onset of scarlet fever in persons who had previously been exposed to infection without taking the disease.

The infection of scarlet fever may be conveyed by persons who do not themselves suffer, doubtless in their clothes; but further, the symptoms of scarlet fever may be very anomalous or very little marked, and, especially in the adult, may consist only of sore throat; the infection of the disease is peculiarly apt to be distributed by such cases.

Variola—Incubation Period.—The incubation period of small-pox is commonly twelve days (from exposure to initial symptoms), but is not very frequently a day more or a day less. It is occasionally only nine or ten days, and sometimes fourteen or perhaps fifteen days.

Period of Infectivity.—Small-pox is infectious from the onset of the initial symptoms, and until all scabs have cleared off, but it is very much more infectious during the height of the active stage of the disease than during the initial illness, so that isolation at the time of the first appearance of the rash may be practised with a considerable expectation that the spread of the disease will thereby be prevented or diminished. The infective principle can be retained and conveyed by fomites, and by the hair of a person who has been in intimate relations with a patient suffering from small-pox.

Quarantine.—The period of quarantine ought to be fifteen days; if at the end of that time the person who has been exposed to infection shows no signs of indisposition, and presents no elevation of temperature, it will be safe to conclude that the infection has not been contracted.

Varicella.—The incubation period of varicella appears to be a little longer than that of variola. It is usually fourteen days, but may be a day less or four or five days more. The infection may be derived from a patient at least as soon as the rash appears. A convalescent patient may convey the infection to others. The infection may probably be conveyed in clothes.—*British Medical Journal, May* 6, 1893, *p.* 958.

2.—THE TREATMENT OF CHOLERA BY HYPODERMOCLYSIS AND ENTEROCLYSIS.

By Judson Daland, M.D., Philadelphia.

1. *The Evacuant, or Collapse Stage.*—In this stage much can be done. In consequence of the enormous discharge of liquids from the stomach and bowels the entire organism is shrivelled and shrunken, and the blood loses a large portion of its watery element. As a result of this serious drain the red blood-corpuscles cannot circulate freely. This condition produces cyanosis, which shows itself quickly, and is more especially noted in the extremities and about the nose and lips.

Furthermore, in consequence of the great loss of liquids, the muscles get into a tonic spasm, they become hard and board-like in character, twisting and distorting the superior and inferior extremities, and exciting intense pain. To meet this indication it becomes necessary to administer liquids, but, unfortunately, vomiting and diarrhœa are constant, and attempts to administer liquids are usually followed by their prompt rejection. The most natural and simple method of supplying this want of the system for liquids is by the subcutaneous injection of a solution of $\frac{6}{10}$ per cent. (or two small teaspoonfuls) of sodium chloride in a quart of hot water (distilled and sterilised), to which two ounces of brandy may be added. The operation of hypodermoclysis was first employed by Cantani, at Naples, during the epidemic in 1865, and was again used by him with great success in 1885. The operation is one of great simplicity, requiring for this purpose a small-sized aspirating-needle and canula, which is attached to the rubber tube of an ordinary fountain syringe. The best point for the introduction of the needle is in either

flank, between the ribs and the crest of the ilium ; the inner surface of the thighs may also be used. Observation has shown that there is danger in the injection of liquids beneath the skin of the neck, as two cases of fatal œdema of the larynx following such injections have been reported. The operation should be performed in accordance with the well-known rules of antisepsis. The entire apparatus should be sterilised, and the skin that is about to be punctured should be first washed in soap and water, then alcohol, then ether, and afterwards well saturated with a 1 : 500 solution of bichloride of mercury. A fold of the skin should then be grasped between the thumb and forefinger and elevated, and the needle introduced through the skin into the subcutaneous space. When this operation is performed under these circumstances no unpleasant effects have been observed. In a large number of cases thus treated at the Swinburne Island Cholera Hospital, but one abscess developed, which was distinctly traceable to an infraction of the rules here advised. The first injection in an adult should be one or two quarts ; for an adolescent one or two pints, and for an infant one-half pint. The solution should have a temperature in the reservoir of 110° F., which will be reduced to 105° F. after traversing the long tube to the subcutaneous space. The liquid should be slowly introduced by hydrostatic pressure, which may be regulated to a nicety by raising or lowering the reservoir. It requires twenty to thirty minutes to introduce one quart of liquid, and ordinarily it is unnecessary to disperse the liquid by massage, though this should be advised in grave cases where rapid absorption is imperative. As it is natural to suppose, this subcutaneous liquid forms a large oval swelling, the size depending upon the amount introduced. In favourable cases absorption takes place in from twenty to forty-five minutes, but in some cases four hours are required. It therefore becomes evident that the rate of absorption is of great prognostic importance. If all the tissues are dried, and absorption takes place slowly, it is an evidence that the lymphatic, as well as the hæmic, circulation is at a low ebb, and that death is imminent. Occasionally when the operation is repeated frequently, the patient may complain of sensitiveness and pain, aggravated by slight pressure over the region of the punctures, but this disappears within forty-eight hours. If, at the end of the first introduction, it is deemed desirable to introduce more liquid, a second puncture may be made in the other flank at a corresponding point on the opposite side, and injections may be made every two hours or less frequently, depending upon the condition of the patient.

The second great indication for treatment is to counteract the pathological process which may be going on in the intestinal mucous membrane.

Recognising the difficulty of introducing any substances by the mouth, one's attention is naturally directed towards a remedial agent that may be introduced through the rectum.

Of all the substances that have been advanced to meet these indications, tannic acid is, in my opinion, the best, and the solution that was habitually used in the treatment of the cholera cases in New York Bay was a two per cent. solution of tannic acid in water (or three teaspoonsful to the pint), at a temperature of 110° F. Of this solution two quarts may be given to an adult, one to an adolescent, and one pint to a child. The solution should be introduced very slowly, and I advise for this purpose the use of a medium-sized soft rubber tube having a diameter of one-fourth of an inch. The one found most useful was originally intended for lavage. It should have one outlet one-half inch from the extremity, and a second on the opposite side two inches from the extremity, and the terminal portion should be closed so as to present a rounded extremity, which greatly facilitates its introduction. In an adult this tube should be thoroughly warmed, well oiled, and gently and slowly introduced into the rectum by a rotary movement and slight pressure, for a distance of ten inches. Occasionally the first attempt will be unsuccessful, in which event the same procedure should be repeated, changing slightly the direction of the tube. To this soft-rubber rectal tube should be attached an ordinary fountain syringe which is the same as the one suggested for hypodermoclysis. The liquid in the reservoir should have a temperature of 110° F., which will be lowered 5° before it will have entered the small intestines. The advantages of this simple apparatus are that the hydrostatic pressure may be modified immediately to suit the particular case in question, and in this manner the rate of discharge of the liquid may be regulated. It is absolutely necessary that the tannic acid solution should be *slowly* introduced, and ten minutes should be required for the introduction of one quart of this liquid. Three or four minutes should be allowed to elapse, while gentle pressure is made on the anus, and the patient should be encouraged to retain the injection, even though there be a strong desire to evacuate it. Not infrequently, if this desire is overcome, it will be retained without further difficulty. The tube should be slowly withdrawn. If the injection is retained, it will inhibit the growth of the comma bacillus; it will supply heat to the body in the most advantageous manner possible, and, if absorption takes place, it will supply a much-needed fluid. If the liquid be rejected the first objects are obtained in part, and the intestinal tract is flushed of its contents, thereby removing poisonous material which, by absorption, would endanger life. In severe cases enteroclysis may be repeated as often as every four hours.

As coldness of the body and lowering of the central temperature is an almost constant condition in Asiatic cholera, it becomes necessary to supply heat. This has been accomplished by heating the liquids used in hypodermoclysis and enteroclysis, and also by the hot plunge bath, which should always be given to patients in this stage. This bath may be repeated as often as is deemed desirable; and I should further advise that the entire skin surface be covered by soft, woollen under-garments immediately thereafter, and from time to time hot air may be conducted beneath the bed-clothing. Advantage may also be taken of hot air; hot-water bags; hot-sand bags, or hot bricks, which may be placed near the body, more particularly about the extremities. The patient should be covered by two woollen blankets and a counterpane. A most excellent suggestion, by which heat may be added to the body, has been made by Dr. Francis X. Dercum, namely, that the patient be placed upon a water-bed, which may be filled with hot water.

Stimulation.—The best method of administering stimulants is by deep hypodermatic injections of brandy, repeated every hour or less frequently, according to indications. For an adult, thirty minims may be employed; for an adolescent, fifteen; and for an infant, five minims. During the stage of collapse, if, at any time, there is a tendency to vomiting, it is wise to avoid administering any substances by the mouth.

Lavage.—As the stomach frequently contains large quantities of choleraic liquid, it is often advisable that a soft-rubber stomach-tube be introduced, and that lavage be thoroughly performed, using for this purpose a hot tannic acid solution, such as is employed in enteroclysis.

Nourishment.—The only nourishment that should be administered is peptonized or sterilized milk in small quantities about two ounces every two hours. If this is not well received, it may be surcharged with carbonic acid gas, or koumyss may be substituted. Iced champagne, in small quantities, may also be given. The only liquid that should be permitted is carbonated distilled water, or table waters, such as Apollinaris. Twenty to forty drops of hydrochloric acid may be administered with the carbonated water at intervals of four hours.

In all the cases of cholera that I have treated no drugs have been employed other than those before mentioned.

2. *Stage of Reaction.*—During this stage the quantity of liquid food may be increased as well as the quantity of liquids. Hydrochloric acid, thirty or forty drops in a tumbler of water, should be given. If the suppression of urine, which is almost invariably present in the stage of collapse, continues, this would be an indication for the continuance of hypodermoclysis at intervals of eight hours. The enteroclysis should now be

suspended. If the temperature is normal, artificial heat should be withdrawn ; and if reactive fever shows itself, the woollen under-garments should be removed and the patient should be covered with a very light-weight woollen blanket. In order to encourage more perfect digestion, five grains of pepsin should be administered along with the hydrochloric acid. In favourable, uncomplicated cases the amount of nourishment may be gradually increased, passing from liquid food to more solid substances, such as boiled rice, bread saturated with milk, junket, poached white of egg, &c., gradually returning to ordinary food. In those cases where the typhoid stage of the patient remains, the hypodermoclysis should be repeated once or twice daily, and, in addition to what has been suggested, $\frac{1}{40}$ grain of strychnine and three grains of quinine may be administered every four hours, along with the hydrochloric acid and pepsin.—*American Journal of the Medical Sciences, July*, 1893, *p.* 37.

3.—THE TREATMENT OF CHOLERA.

By Frank Abbott, M.D., Deputy Health Officer to the Port of New York.

The rational treatment of Asiatic cholera is derived from our actual knowledge of the disease ; being as it is a localised, infective process, our efforts should be directed to destroying the vitality of the bacteria, if possible; in their place of localisation, and to neutralising the effects of the absorption of the poisonous substances created in the intestinal tract by the comma bacilli which produce the disease. The first indication is filled by flooding the intestines with solutions of substances capable of stopping the growth or destroying the life of the pathogenic bacteria of the disease. Acid solutions, as is well known by all experimenters, have a more or less germicidal action upon the comma bacilli. Abundant rectal injections, or enteroclysis, as Cantani has called it, cannot only cleanse the different portions of the large intestine, but actually pass through the valve of Bauhin into the small intestine, reaching in some instances the stomach, as can be proved by chemical analysis of the contents of that organ after enteroclysis. It happens in some cases, although the solution penetrates and fills the large intestine, the last portion of the ileum is so flexed upon the cæcum that the injection will not pass into the small intestine, but a careful and well-directed massage of the right iliac fossa will soon overcome the obstruction. This has in many instances been put forward as an objection to the practice of enteroclysis, but it has been demonstrated clinically that the ileo-cæcal valve is readily

permeable. A two per cent. solution of tannic acid stops the growth of the comma bacilli and destroys its vitality in from one to three hours. Enteroclysms of this solution, one-half gallon at a time at 40° C., according to Cantani, 42° C., according to Byron (104 to 106° F.), not only act as an intestinal disinfectant, but by their temperature counteract the tendency to collapse, which is one of the characteristics of this disease. The intestinal injections should be begun in all cases, without exception, as soon as the first diarrhœic symptoms appear. Any case of diarrhœa in a cholera-infected locality should be considered as suspicious and treated accordingly. The solution of tannic acid is prepared by dissolving two ounces of tannin in one gallon of sterilised water, then the solution is heated to the proper degree of warmth as above given, and injected into the colon by means of a flexible catheter not less than two feet in length. The pressure should be regulated with a fountain syringe at the height of about four or five feet. In some instances the injection does not seem to penetrate into the colon, but by allowing the solution to first fill the rectum and advancing the catheter gradually, as the intestines fill, the operation is performed without difficulty. The volume of the injection should be measured by the age and size of the patient ; for children of two years of age, about a pint of the solution, injected every two hours, or more frequently, according to the indications of each case, is sufficient ; while in the adult the dose may vary from one quart to one gallon, repeated as often as symptoms demand. In some instances, when vomiting has not begun, calomel in doses of ten grains, repeated every hour until thirty grains have been taken, may prove of great advantage.

In cases where the stomach rebels against any medication it is useless to lose time trying to treat the disease by the administration of medicaments *per orem*. Another fact that should not be forgotten, whether the case is slight or grave, is the disinfection of the external integuments ; all patients should be thoroughly washed in an immersion hot bath and their skin cleansed with slightly acid solutions. They should be put in a warm bed, and stimulants, such as hot coffee or hot tea with brandy, administered. In many instances this treatment will check the progress of the disease, as has been proven in cases in which the coma bacillus has been found in the dejections of patients who never reached the stage of collapse, or the second stage of the disease. When the diarrhœa is profuse and persistent, and the first signs of collapse appear, hypodermic injections of alkaline solutions should be resorted to without a moment's delay. These not only replace the water lost from the blood, but by increasing the volume of fluid contained in the body help to dilute and eliminate the ptomaïnes produced by the comma bacilli, which otherwise

would be retained in the system. The solution for hypodermic injections, or hypodermoclysis as it is generally known, is prepared by dissolving seven parts of sodium chloride in one thousand parts of sterilised water (sodium chloride ℥ ij., water ℥ xxxij.) with or without the addition, according to the necessity of the case for a stimulant, of ten parts of brandy or six parts of pure alcohol, and heating the whole to 37° C. (98·4° F.). The operation is performed by means of an ordinary bulb or fountain syringe, and a small-calibre aspirating needle inserted, preferable, in the latero-thoracic region. The amount injected each time varies according to the case. In an adult a quart is not an excessive amount, and this may be repeated as often as required until the pulse, which should be the guide to the physician in these cases, becomes strong and full. In most cases the absorption of the injected fluid indicates the prognosis. A quart of fluid is generally absorbed by an adult in about thirty minutes. If the absorption does not take place the probability is that the vitality of the patient is so low that all interference is useless. Hypodermoclysis and enteroclysis must be continued until the temperature of the body and the action of the heart show an improvement in the case. Hot-air baths are most beneficial to maintain the temperature of the body. If the symptoms of asphyxia are persistent, notwithstanding the above treatment, inhalations of oxygen under certain circumstances have been of great benefit in cases which seemed almost hopeless. Cramps, which are the most distressing symptom during the attack in its advanced stages, are relieved by the combined action of the hot-air baths and massage.

Opium and all its derivatives, as well as hydrate of chloral, bromides, &c., should be avoided, as the only result of the use of such therapeutic agents is to depress the action of the heart and the vitality of the patient. From our actual knowledge of the disease, which is only the localisation of a pathogenic germ in the intestinal tract, with subsequent absorption of a poison which produces an action very similar to that of muscarine, the treatment is evident, and it will be found that that given above is the best known to science to-day. The contagion having taken place, the germs being in the intestinal tract, the ptomaïnes having been absorbed into the blood, our efforts should be to remove the poison from the blood, and to put a stop to the activity of the germ in the intestinal tract ; in other words, wash out the blood, wash out the intestines.

During the third, or reactionary stage, which differs according to the severity of the attack, the nutrition of the patient should be the principal aim of the physician ; to re-establish the impaired action of the kidneys and build up the system gradually, a careful diet should be given, avoiding everything that requires

much effort in the way of digestion, thus protecting the alimentary tract from irritation. Seltzer-water with milk, carbonated beverages, champagne in moderate doses, maltine with cod-liver oil in weak children, maltine with peptones in older persons, will be found beneficial. The latter is the best substitute for a combined meat and cereal diet.

The convalescence after cholera is long and tedious, and fraught with much danger to the patient on account of the lesions left in the intestinal tract. Notwithstanding the apparent good condition of the patients after leaving their beds they are very debilitated, and the least excess or error in diet may give rise to serious complications. Duodenal digestion is always very poor in these cases, and foods which require little digestion in the small intestine should be adhered to for some time, and here maltine preparations have proved exceedingly useful. As to the prophylactic treatment, only brief mention is necessary. Isolation of the patients and thorough disinfection of their clothes and dejections are the best means of avoiding the disease. It should not be overlooked that water for drinking purposes, and all foods, should be recently boiled or cooked before being used, and it is highly important that the physician sees that in his families these precautions are observed. All cases of indigestion should be promptly treated, the system of delicate persons built up as far as possible, and any errors of diet corrected.

The results of the above treatment were practically demonstrated in the last imported epidemic of Asiatic cholera at the quarantine station. In most of the steamers which brought the cholera patients over the death-rate on board reached over ninety per cent. of the total number of sick, while at Swinburne Island the percentage of death was reduced to twenty per cent., and it is believed that treatment carried out as above, with careful attention to detail, and begun early enough in the disease, may reduce the mortality still lower.—*New York Medical Record*, *March* 25, 1893, *p.* 363.

4.—ON THE DIAGNOSIS OF SMALL-POX IN ITS EARLY STAGES.

By Thomas D. Savill, M.D.

During the recent inquiry into the small-pox epidemic at Warrington, which I have made on behalf of the Royal Commission on Vaccination, I have been much impressed with the importance of the earliest possible recognition of the disease. Without this, the other means of preventing spread may be of no avail. A typical case of variola with the pustular rash well

out is, perhaps, one of the easiest diseases to recognise ; but the difficulties in the diagnosis of incipient small-pox as we see it in the present day are often very great.

It may be useful, therefore, to examine, first, the means at our disposal for diagnosis before the appearance of the typical eruption, and secondly, the means of distinguishing the characteristic papular rash of small-pox from others for which in actual practice it is liable to be mistaken.

A. The means on which reliance may be placed for diagnosis before the appearance of the typical papular eruption are :

1. *A Suspicion that Small-pox is or may be in the Locality.*—Many of the serious epidemics of modern times would have been averted if medical men had borne this in mind when in the presence of what his patient has diagnosed as "heat bumps." At the present moment there is no part of the United Kingdom to which such suspicion may not apply.

2. *The Sudden Advent of Pyrexia in a previously Healthy Person.*—A more liberal use of the thermometer would, I believe, often lead to an early detection of the malady, and would, moreover, avert the charge, sometimes made by ignorant friends and relatives against the doctor of "giving his patient small-pox" by vaccinating him too late. On the first day of onset the temperature runs up suddenly to 102° F. or more, and remains up more or less till the eruption appears on the fourth day, when it begins to fall, and the patient feels much better. In my experience this preliminary fever, accompanied by *malaise*, occurs in even the mildest cases, and its severity is no guide to the subsequent course or severity of the disease. This sudden advent of pyrexia occurs in only two other acute specific diseases common in this climate, namely, scarlatina and erysipelas, and is of itself, therefore, a most valuable means of detection.

3. *Other Constitutional Symptoms.*—Along with the initial fever there are other constitutional symptoms which are more common in variola than other kindred diseases, and which are, moreover, of a very characteristic kind. Chief amongst them are severe *pain in the back*, and *sickness or vomiting*. "Aching all over," the patient tells you, but much worse in the back and loins, with the symptoms of "a cold." The three symptoms—sudden advent of pyrexia, pain in the back, and sickness—especially when occurring in a district where variola may possibly have been imported, are quite distinctive of the disease. The lumbar pain and sickness are rarely as marked in scarlatina or erysipelas, but all three diseases call for some sort of quarantine precautions ; and in the course of thirty or forty hours the appearance either of the red blush spotted with tiny papules of scarlatina, or the raised marginated erythema of erysipelas, will decide in which category the case should be placed.

4. *Initial Rashes.*—In certain more or less rare cases of small-pox an initial rash appears before the typical eruption of the fourth day. It appears usually on the second or third day of the disease. It is generally of an erythematous and sometimes petechial character; and its favourite position seems to be over and adjacent to Poupart's ligament; or it may be in the axillæ or other flexures of the joints. Erythematous or purpuric eruptions in this position are highly characteristic of the disease. This is what my own somewhat limited experience of these initial rashes teaches: but Dr. S. J. Sharkey, who did great service by directing professional attention to the matter, has recorded some cases where the initial eruption was more generalised, and involved the flexor or extensor surfaces of the limbs. This author classifies the erythemata occurring in this initial stage into: *a.* General erythema—(1) Scarlatiniform, (2) Morbilliform; *b.* Partial erythema—(1) On extensor surfaces, (2) On flexor surfaces.

My belief is that these initial rashes are comparatively rare, but it would be of much interest if those who have the opportunity of observing a large number of variola cases at an early date would give their experience both as to the occurrence and most frequent form.

Date of Appearance of Rash.—The date of appearance of the rash is a matter of some importance. It is generaliy stated to be three days after the onset—namely, the fourth day of disease. Out of 375 cases I have had the opportunity of investigating on this point the largest number, 31 per cent., appeared on the third day of the disease, 26·4 per cent. the fourth day, 15·7 per cent. the second and fifth days, 4·5 per cent. the sixth day, 4 per cent. the first day, and 2·6 per cent. the seventh day.

B. The true eruption of small-pox always starts as *hard round isolated papules.* Like *measles*, it first shows itself on the face, and also at the same period of the disease (fourth day). These two eruptions are often extremely hard to distinguish off hand. (*a.*) Both are papular, but measles has a tendency to be flat, whereas variola has a tendency to be "shotty" and round. (*b.*) In measles the papular character begins to subside at the end of about twelve hours; but in small pox the shotty papular character goes on increasing, and passes in forty-eight hours into the vesicular and thence into the pustular stage.

The temperature is of but little value in the diagnosis of these two affections, for in both the temperature falls when the rash appears; but the accompanying coryza of measles and the history of the patient's previous illnesses are valuable aids. With *German measles* small-pox need never be confused, but in any difficulty the above indications are sufficient. The rash of *scarlatina* differs very widely in its appearance, &c., from variola.

The eruption of *chicken-pox* may be distinguished from small-pox by the absence of premonitory fever, the rash being the first, often the only, symptom noticed in the former disease. Moreover, the papular stage is very transient, giving rise in a few hours (as compared with two clear days) to a clear vesicle on a slightly inflamed base, without induration. The face is not, as in variola, the most favourite place, and different stages of the eruption may always in chicken-pox be seen at the same time.

It should always be borne in mind that small-pox as we see it in the present day presents many degrees of severity, and some cases are so trivial as scarcely to merit the patient's notice, from the scanty rash and few symptoms, much less to impede him in his work. These cases require to be diagnosed from *acne*. This can only be done (*a*) by the position, for acne favours the roots of the hair, and (*b*) by the fact that the acne spots may generally be seen in several stages, and some nearly always show the small points of comedones. In the mildest case of small-pox some constitutional signs may generally be discovered by careful investigation. A few isolated papules occurring (and not becoming vesicular or pustular) on the fourth or fifth day of an illness are most probably small-pox.

I should like to take this opportunity of pointing out the great value which attaches to the question of time in the diagnosis of a small-pox rash. A knowledge of the exact age of an eruption will often decide the question. At the end of twelve hours the papules of measles begin to fade, those of small-pox get harder and larger, and after an interval of two days become vesicular; whereas varicella is vesicular almost at the very commencement.

The feel of a small-pox rash is another point only second in importance to the element of time. To pass your hand over the forehead and cheeks is a procedure which should never be omitted in a doubtful case. In this way the disease could almost be diagnosed in the dark. I know objections may be urged, but the advantages are very great, for the hard shotty lumps of small-pox, which can be felt even before they are visible, are totally different from the feel of the soft flat marginated papules of measles, or the non-indurated vesicles of varicella.

These are the chief diseases which in actual practice are liable to be confused with incipient small-pox. At a later stage there is rarely much difficulty, though I have mistaken a case of acute glanders, in which the usual nasal discharge was absent, and my mistake was amply confirmed. But having regard to the grave issues at stake, it is undoubtedly wise to adopt quarantine precautions in any doubtful case. It is hoped that the day is not far distant when a properly fitted quarantine ward will be regarded as a necessary adjunct to the receiving ward of every isolation hospital.—*British Medical Journal*, *April* 29, 1893, *p.* 888.

5.—CRETINISM TREATED BY THYROID EXTRACT.

By Edward Carmichael, M.D.

Although several cases of myxœdema treated by thyroid extract and feeding have been reported, as also a case or two of cretinism by transplantation of the thyroid, few, if any, cases of the latter disease have been recorded as treated by the hypodermic injection of thyroid extract and feeding; I therefore desire to state briefly the following regarding a case which has been under my care. When first asked to see the patient some three years ago, I found that although between five and six years of age, she was like an infant; her features were broad and massive, her skin was dry and harsh, her abdomen prominent, the umbilicus protruding or rather kept in position by plaster, the supra-clavicular pads of fat well marked, and the hair sparse, dry and unhealthy—as was remarked, "she had no hair at all." She made no attempt to walk. Her intelligence was very feeble, although she recognised faces and was capable of showing affection towards her parents. Her appetite was extremely capricious, and if the nurse tried to give her a meal she did not care for it was immediately vomited. Obstinate constipation was present, relieved, however, by massage with castor oil. The temperature was always low, but on account of the difficulty of taking it I can give no consecutive table; on several occasions it was about 96° F., sometimes lower.

History.—The child from birth had been slow in action and in vital powers—*e.g.*, vaccination was particularly long in developing. There was a history of a fall from a perambulator when some months old, but I do not think much importance is to be attached to this. Her rate of growth had been about one inch annually. As regards the history of former treatment, the parents had seen several consultants. No medicines, of course, had caused any improvement, but general massage seemed to have brought about some amelioration. Up till April, 1892, any treatment I employed was on account of some special symptom—*e.g.*, eczema, which was very troublesome, or constipation or other complication.

Treatment.—In April, 1892, I got the parents to consent to try the effect of the hypodermic injection of thyroid extract. I began with ten minims twice a week, but after about twelve injections the mother found that the child was restless, irritable and sleepless, and apparently worse after the injections. Accordingly I reduced the injection to ten minims weekly, thereafter every second week, and on three occasions left four weeks between the injections. This brings us down to October, when I began the feeding with the raw gland, giving half a lobe

per week at first, then, after two weeks, one lobe per week, when I tried two lobes one week, and by this time found the temperature normal; but the child was evidently "out of sorts," so the amount was reduced to one lobe a week, and was continued at this till recently, when one lobe and a half were given. It was administered in cool beef-tea.

The result of the thyroid treatment was continuous improvement. After the first few injections the appearance of the child had completely changed; there was a marked diminution in the size of the abdomen, so that a bodice which fitted before the commencement of this treatment now overlapped by four or five inches. The thick lips and alæ nasi were now of normal size, the skin was pliant and soft, the temperature to touch improved, and the hair apparently more healthy, though still sparse. As week by week passed some mark of improvement was always seen. In October the child began to walk, and soon was running about and even walking long distances. The head, smaller to appearance, became covered with a fine crop of healthy hair. Marked improvement in intelligence was seen in many little actions. During nine months the child has grown fully four inches; the supra-clavicular pads have quite disappeared; the appetite has improved amazingly, her dietary being a much larger one now; the constipation is gone, the umbilicus no longer protrudes, and there is no tendency to eczema. The temperature remains at about 97° F. The improvement is such that a friend and regular visitor at the house, who had been absent for some weeks, on seeing the child did not recognise her, and, thinking she was a stranger, asked whose child she was.—*The Lancet, March* 18, 1893, *p.* 580.

6.—ON HYPERTROPHIC PULMONARY OSTEO-ARTHROPATHY.

By William Thorburn, F.R.C.S., Assistant Surgeon Manchester Royal Infirmary.

[Mr. Thorburn records, with excellent coloured photographs, three cases of this remarkable disorder, and makes the following remarks upon the diagnosis and pathology of the condition.]

The clinical characters of hypertrophic pulmonary osteo-arthropathy, as described by the French writers, are in many respects similar to those of acromegaly; but they present, nevertheless, important and sufficiently obvious differences. In the former disease the hands and feet are always greatly and symmetrically enlarged, the increase in size involving also the

lower fourths or thirds of the forearms and legs, implicating the bones more than the soft parts, and affecting markedly the terminal phalanges, over which the expanded nails are spread out with a transverse and longitudinal curve, so as to be very convex. The nails themselves are very large, and, bending over the ends of the fingers, give these a great resemblance to the beak of a parrot; they usually present a longitudinal striation. Various long bones are often hypertrophied, especially at their ends, and effusion of fluid into the knees and other joints is common. The skull is not affected, the lower jaw, nasal and malar bones being also normal; in one case only was the upper jaw slightly deformed by thickening of its alveolus. Scoliosis is common, and it is not rare to meet with kyphosis, which affects the lower dorsal region. The disease is generally of insidious onset and long duration, and in all or nearly all cases is accompanied by some form of chronic bronchial, pulmonary, or pleural disease, for which reason it is described as "of pulmonary origin." From osteitis deformans it differs widely, but especially in the absence of enlargement of the cranium. Myxœdema is also perfectly distinct, and is characterised by the thickening of the soft parts rather than of the bones. A perusal of the annexed reports will sufficiently indicate that we have certainly not to deal with even atypical cases of chronic rheumatic arthritis, leontiasis ossea, gigantism, or of ordinary tuberculous or syphilitic lesions, all of which have been clearly distinguished from hypertrophic pulmonary osteo-arthropathy by other writers. Finally, many of the points already referred to show that there is in this condition something more than a mere exaggeration of the common Hippocratic hand of pulmonary and cardiac diseases, and the fingers differ from ordinary clubbed fingers in that the main enlargement is not terminal, and that it is unaccompanied by cyanosis.

The only real difficulty in diagnosis hitherto encountered has been in the differentiation of hypertrophic pulmonary osteo-arthropathy from acromegaly, and the latter is distinguished chiefly by the more uniform and proportional hypertrophy of the fingers, the relative smallness of the nails, the large size of the carpo-metacarpal region as compared with the wrist, the analogous condition of the foot, and the normal size of the radius and tibia. In acromegaly also the hypertrophy is not so distinctly limited to the bones; kyphosis, when present (as it usually is) affects the cervico-dorsal and not the dorso-lumbar region; the lower jaw is greatly deformed, causing marked prognathism; the nose, lips, tongue, neck, larynx, and ears are often enlarged, and there are defects in speech, mastication, and deglutition. All of these characters are conspicuous by their absence in our disease. Acromegaly further presents no essential

connection with chest affections, but is commonly accompanied by, if not due to, enlargement of the pituitary body, with consequent visual and cerebral troubles. Other minor distinctions have been made, but in the present condition of our knowledge of the subject, a too great refinement of detail would appear to be dangerous, and a broad view of every case under consideration is more likely to lead to a correct conclusion as to its nature.

The most interesting point about this affection is the question, not yet satisfactorily settled, as to its essential nature and pathology. The original suggestion of Marie, which has been adopted by the subsequent French writers, was that there is always a primary lesion of the respiratory apparatus; that at the seat of this lesion there are produced, by the action of micro-organisms, putrid or fermenting substances (toxines); that such substances are reabsorbed into the circulation; and that finally they there exercise an "elective action" upon certain parts of the osseous and articular systems, producing inflammatory troubles. In favour of this elective chemical origin is cited the example of gout, in which the circulation of uric acid produces lesions not very widely different. Marie admits that this theory is wanting in proof, but offers it as the only reasonable suggestion occurring to him; and he draws a parallel between hypertrophic pulmonary osteo-arthropathy and the toxic pseudo-rheumatism of Bouchard.

Bamberger, writing independently of Marie, and describing the "bony" changes in chronic pulmonary and cardiac diseases," gives very complete details as to the pathological appearances in various cases, many of which are no doubt of the same nature as the disease with which we are concerned, but his generalisations are somewhat confused by his inclusion of the congestive clubbed fingers of congenital and other heart diseases. For the hypertrophies associated with lung troubles he, however, advances a view very similar to that of the French physician. His lung cases are all regarded as examples of bronchiectasis, and he is at some trouble to show by bacteriological observations of the sputa that they are not tubercular; he holds that the essential condition is the presence of a pulmonary or bronchial cavity, in which are produced by fermentative action chemical substances, which, on being absorbed into the circulation, give rise to the osseous and articular inflammations. In support of this view he adduces the evidence that (1) several patients stated that the first affection of the limbs was coincident with the commencement of fœtor of the sputum; (2) the injection of phosphorus and arsenic causes similar troubles; (3) cases of bronchial catarrh and of tuberculosis without purulent sputum are not

accompanied by the symptoms described. On the other hand, he made a number of injections of the sputum of bronchiectasis into animals without producing any analogous symptoms.

If now we turn to the associated conditions as indicative of the possible nature of the affection, we find that in all cases, except one of Erb's, there has been some chest lesion; and it is to be remembered with regard to Erb's case, first that there was "retrosternal dulness" of unknown origin, and secondly, that Erb himself did not report the case as hypertrophic pulmonary osteo-arthropathy; under these circumstances of obscurity, we are, perhaps, justified in disregarding his case, and in assuming a practically universal association with pulmonary disease.

As regards the nature of this pulmonary affection there is, however, more room for doubt; in two cases (Saundby's and Ewald's respectively) the essential lesion was a sarcoma and a cancer of the lung, associated in the first with chronic bronchitis, and in the second with hemorrhagic pleurisy; but here again neither of the cases was originally described as hypertrophic pulmonary osteo-arthropathy. Of the remaining twenty-seven cases, six (Fraentzel's, two of Lefebvre's Moussous's, Orrillard's, and Gillet's) are described as tubercular, and there appears to be no doubt that the three cases now recorded are also of this nature, thus giving a total of nine, in which tuberculosis was recognised as the primary disease. The following brief statements will indicate that there is at least a strong probability of many of the remaining cases being of the same nature. In Bailly's there were scrofulous glands with chronic empyema, pleural fistulæ, and purulent expectoration; in Erb's first case there had been pneumonia, and there was, at the time of observation, chronic bronchitis, emphysema, and loss of weight; in Elliott's case we have pleural effusion, enlargement of the inguinal glands, and persistent and fatal diarrhœa; in Sollier's, chronic empyema with sinuses; in Marie's slight pulmonary congestion with remittent fever; in Waldo's, pleurisy and pulmonary cavities, apparently tubercular; in Spillman and Haushalter's, cough of some years' duration, with development of distinct signs of phthisis after the onset of the hypertrophy; in Lefebvre's first case, chronic empyema with sinuses; in his second, long-standing cough, abscesses of the chest wall and groin, and free expectoration; in Gerhardt's bronchial catarrh; in Rauzier's, long-standing empyema, preceded by pneumonia, and accompanied by purulent expectoration and diarrhœa; and finally, Bamberger's cases all resembled phthisis, but were regarded as non-tubercular bronchiectasis, mainly on the ground of the absence of bacilli from the sputum (in one of these cases tuberculosis was recognised post-mortem).

From these records the writer cannot but feel a strong conviction that the vast majority, if not all, were really cases of tuberculosis, and this in spite of the explicit declarations of some of the original observers, that there was no tuberculosis. I would suggest that the absence of bacilli and the generally ill-defined nature of the disease is due to the fact of its being of a comparatively mild type, a contention borne out by the absence of severe symptoms in my first case, in which the association of a pulmonary cavity with spinal caries points nevertheless most strongly to a tubercular origin. Allowing then for the fact that hypertrophic pulmonary osteo-arthropathy is as yet a little known disease, and that some of the above cases possibly belong to other categories, the writer inclines strongly to the belief that it will ultimately be shown to be invariably associated with tuberculous lesions, and that in the great majority of cases such lesions are of a badly marked type, either because the patient is making a good resistance to the invasion of the disease, or because the infection itself is less virulent than usual.

The clinical appearances of the hypertrophied parts at once recall those of tuberculous joints; the condition of the knees in my first and second cases is exactly that of a slowly progressive or stationary "strumous" knee-joint; similar affections of other joints have been frequently described by various writers; the wrist and ankles also resemble the same parts as affected by tubercular synovitis, and finally the fingers are not unlike those affected with strumous dactylitis.

Finally the few post-mortem records confirm the view that we have really to do with a tubercular affection. The only anatomical descriptions which we have are those of Rauzier, Thérèse (recorded by Lefebvre), and Bamberger. Rauzier describes, in the elbow, extensive erosion of the cartilages, increase in the amount of synovial fluid, and enlargement of the epiphyses; in the wrist, synovial effusion and erosion of cartilages; in the carpus, enlargement of the bones, with erosions of their encrusting cartilages; and similar changes in other joints which he examined. Thérèse describes thickening and adhesion of the periosteum of the affected bones, with a warty deposit of new periosteal bone, and a central rarefying osteomyelitis. Finally Bamberger illustrates the same condition of periosteal new formation of bone, his figures exactly resembling the condition often seen in the case of long bones adjacent to a tuberculous joint lesion. All observers are agreed that the soft parts are particularly unaffected.

For these various reasons I would suggest that hypertrophic pulmonary osteo-arthropathy is in reality a tubercular affection of a large number of bones and joints, but that it is of

a benign type, having no tendency to break down or caseate. It appears in fact to bear to the common "strumous" lesions of joints a relation similar to that which lupus bears to "tuberculous ulceration" of the skin, and also, like lupus, it is widely diffused, with a tendency to be symmetrical and to affect the extremities, possibly because the comparative feebleness of the circulation here favours the growth of bacilli which are maintaining a precarious existence in the body. Should this view ultimately prove to be correct, we might, with advantage, substitute for the cumbrous but guarded designation of Marie, the term "tuberculous polyarthritis. —*British Medical Journal*, *June* 3, 1893, *p.* 1155.

7.—ON PHYSICAL REST IN THE TREATMENT OF CHLOROTIC ANÆMIA.

By Frederick Taylor, M.D., F.R.C.P., Physician Guy's Hospital.

It is, I think, generally felt that there are few diseases more amenable to treatment than the chlorotic anæmia of young girls. It is a simple thing to give iron in some form or other, whether it be Griffith's mixture, or tincture of the chloride, or dialysed iron, or Blaud's pills—and to manage the constipation which is so often present at the same time. And yet it must be allowed that a great many cases, in spite of this classical treatment by iron and purgatives, linger on from month to month with comparatively little improvement. For some time I have been convinced that a very important factor in the treatment of this complaint has been too little regarded, or even ignored altogether, and that is, *physical* or *bodily rest.*

The arguments in favour of the employment of rest are based upon considerations of theory and practice. First, whatever may be the origin of chlorotic anæmia, there is now no doubt that an essential feature of the developed disease is a deficiency of hæmoglobin in the blood. The red blood corpuscles are reduced to 70 or 60 per cent. of the normal amount, and the hæmoglobin to 30 or 40 per cent., so that each individual corpuscle contains less than its normal amount of hæmoglobin. Without entering upon the question of the special function of the red corpuscles or of the hæmoglobin, I think it must be allowed that a less quantity of either is required for a body at rest, in which the muscles are absolutely quiet, in which the respiratory and cardiac movements are less frequent, in which

less food is necessary, and therefore the digestive processes make less call upon the system in general. For the well-being of the body it is necessary that there should be a proper balance between the income and expenditure of all the constituent elements of which it is made up. As is well known in business, if the balance is disturbed, this may sometimes be sooner readjusted by reducing the expenditure than by increasing the income. Here, equally, the patient by saving the expenditure of hæmoglobin may utilise what little she has to greater effect, and sooner arrive at a favourable balance, than if her income in food, in oxygen, and in iron alone were cared for, while the expenditure in muscular exercise, and the additional employment of the respiratory and cardiac functions, were entirely neglected.

The argument in favour of rest is, of course, all the stronger when the heart is found to be dilated as a consequence of the anæmia, and when even the slightest exertion is productive of breathlessness and panting. Nearly every one would then allow that the condition of the heart is a sufficient ground for requiring that physical rest should be enjoined. I would, however, urge that the case should not be left without this point being considered until the heart is suffering; but that this complication should, if possible, be prevented by the early adoption of rest, as a means of saving not only the muscular power of the heart, but the expenditure of the body in general.

It is a familiar fact that cases of chlorosis admitted into hospital rapidly improve, and I remember years ago my revered teacher, Dr. Wilks, remarking that these were cases which it was always desirable and satisfactory to admit, because so much good could be done for them. Now it cannot be urged that chlorotic girls benefit very much either by the air, by the food, or by the exercise which they get in the hospital. They are generally patients decidedly above the lowest stratum of the population, such as domestic servants, shop-girls, or factory-girls. The food may be, but is not necessarily, better than what they have been having; the air is very probably much the same, though if it is different it is likely to be worse from the proximity of numerous other sick people. The exercise is as a rule certainly less. What usually happens is that a girl suffering from chlorosis lies in bed like most other patients, as a mere matter of routine, and does not ask, and is not allowed, to get up until she is decidedly improved. This, I should say, has been my own practice, as a part of ward routine, even before I had come to the conclusion that rest was such an important factor as I now think it is.

The remarkable uniformity with which patients of this class improve in a hospital, and the rarity with which they go out

unrelieved, is to my mind a very strong argument in favour of the view I am urging.

Of course, income must be cared for as well, and iron should be given in the most suitable form, and a perfect action of the bowels should be maintained. Indeed, it must be allowed that this is not a method which directly removes the cause of the complaint or goes to the root of the evil. But neither does rest in valvular cardiac disease go to the root of the evil, since the valves remain diseased, and yet the patient may have comfort and practical health for years as a result of prolonged rest. It may be incidentally remarked how few lines of treatment do go to the root of the evil, and how many methods in numerous diseases are only palliative, or symptomatic ; yet benefit is obtained.

But, further, one may safely say that it is not even certain that the treatment by the administration of iron goes to the root of the evil, the exact cause of chlorosis being still very uncertainly known. For, curiously, though there can be no doubt that the administration of iron is of benefit, and apparently directly curative, I do not remember that any one has attempted to prove, or has brought forward facts to prove, that the subjects of chlorosis take less iron in their food than other people, or than they did themselves before they were ill. Nor is it perhaps necessary to entertain such a theory ; chlorosis would be explained if it could be shown that anything prevented the absorption of iron naturally present in the food.

If, then, iron does not here remove or even attack the cause of the chlorosis, why does the chlorosis not more often relapse when the iron is discontinued ? It does sometimes. But if the period of the iron treatment suffices for the withdrawal into the background of the *causa vera* of the disease, it is not unreasonable to suppose that even during prolonged rest the same thing might happen. However, as I have already stated, I am not venturing to suggest that rest should be adopted as the sole treatment, but only as a very important adjunct.

What I wish especially to lay stress upon in this communication is that the classical treatment by iron, or by iron and purgatives, is not assisted, but much counteracted, by the prescription of exercise. Against fresh air I have nothing to say so long as it does not involve exercise, either by walking or riding. It is, of course, partly a question of proportion : the worse the case the more absolute should be the rest. In a slighter degree of anæmia, or one already recovering, carriage exercise may be allowed, while in the severe forms the patient may be with advantage kept in bed entirely, the most certain means of keeping a patient absolutely at rest. An intermediate prescription is that the patient shall get up only for three or four hours in the afternoon.—*The Practitioner*, *Sept.*, 1893, *p.* 161.

DISEASES OF THE NERVOUS SYSTEM.

8.—ON THE TREATMENT OF DELIRIUM TREMENS.

By G. B. Twitchell, M.D., Cincinnati.

[The following remarks are based upon the observation of 132 cases of delirium tremens in the Cincinnati City Hospital.]

The frequent, if not invariable, presence of kidney-lesions, whether these lesions do or do not constitute the essential pathology of the disease, should not be forgotten. It is wise to begin treatment with a purgative, and to keep the bowels freely open throughout the disease. Practice shows the value of this. Diuretics, especially digitalis, have been used, and highly praised. Probably hot-air baths and similar procedures would be of great value, especially in the typhoid stage. I have never seen them used. Such means should be used with the idea of eliminating the toxic principles, whatever they may be.

But there are a number of other indications to be met, and in meeting them we are possibly employing physiologic antidotes, for surely certain drugs seem actually curative. By the proper use of sedatives we can prevent the nervous system from becoming overwhelmed, until time enough has passed for the toxins to be eliminated. And, indeed, it seems that violent nervous disturbances are of themselves injurious and dangerous, aside from exhausting the patient, increasing, perhaps, the very products of metabolism of which we are anxious to get rid. It is not considered safe to allow the convulsions of puerperal eclampsia to go unchecked. Yet no one would claim that the drugs used in checking them remove their cause; but the common opinion is that these drugs are to some extent curative. Surely morphine is so considered by many.

A great many cases of delirium tremens will get well without treatment. These are usually abortive cases. First attacks almost always recover unless associated with pneumonia or injury. A careful attention to the digestive system will hasten recovery. Capsicum, or some similar drug, aids greatly in overcoming a nervousness (present after every alcoholic intoxication) that seems associated with the disturbed stomach.

In the severer cases the stomach-symptoms are not nearly so prominent. Vomiting never interferes with medication. Little can be done for the anorexia.

It is often impossible to tell whether a case in the incipient stage will stop or go on to more dangerous conditions. A radical treatment at this time is easier, safer, and more successful than

later. Put the patient to sleep before the severe delirium comes on; it is easy now; it may be very difficult later. The earlier that chloral or other hypnotic is used, the easier can its results be obtained. Exhaustion does not assist the drug until the typhoid stage is reached, when the sleep obtained is not natural but a sort of semi-coma, and the time for benefit from the drug has passed; or, too often, the typhoid stage is never reached, and the exhaustion that we had hoped would aid us leads to a coma that rapidly ends in death.

The medical treatment in vogue at the City Hospital, when I was interne, was potass. brom., gr. xxx; chloral, gr. xx, every three hours—sometimes a little more and sometimes a little less. Very little else was used in the violent stage until the heart began to fail, when, of course, stimulants were administered. The results were not good. Bromides are absolutely worthless in such a disease. At the best their sedative action is a very mild one. Chloral was usually given in altogether insufficient doses. If the chloral or other drug does not make the patient sleep, it does no good and probably does harm.

In a few cases chloral was given in sufficient doses to produce sleep; 30, 45, or 60 grains, varying with the case, were given from every half hour to three-quarters of an hour, until the patient was asleep, and then if he was delirious on waking he got another dose, 30 grains being usually sufficient at this time. The cases so treated did remarkably well. When the treatment was commenced early, but small doses were required. One dose was often sufficient; more than three were never required. The patient often slept eight or ten hours without waking, and on waking was rational. Some of the cases so treated were very severe, one being complicated with a fractured jaw; yet all recovered. Of course, the unusually good results obtained were, in a measure, accidental. This treatment was not sufficiently used at the City Hospital to be very good evidence in favour of such dosage. In all, ten cases were so treated. But while this number is very small, it must be remembered that the results obtained by this treatment in former times were good. One great advantage this method has over repeated small doses is that the patient is not so often disturbed. It is often very difficult to persuade a violent delirium-tremens patient to take medicine after the first two or three doses. Hypodermatic medication alarms the patient too much.

In pneumonia the tendency to heart-failure is so great that perhaps chloral would be dangerous. However, recoveries under any treatment are rare. Perhaps it is especially in surgical cases that this treatment is most valuable. In these cases the first intimation of delirium should be met by sufficient chloral.

Unfortunately many cases will die, no matter what treatment is used. It is astonishing how rapidly some of these cases, especially surgical ones, grow worse in spite of all efforts of physician or surgeon.

Shackles are a necessary evil. In the violent stage they are often indispensable, the milder substitutes, such as tying a sheet over the patient and to the bed, being altogether insufficient. In the later stages it is bad practice to use them, as they tend to keep the patient in one position and increase a tendency to hypostatic pneumonia.

A number of drugs were tried in the typhoid stage. Ergot had no effect. It was used with a mistaken idea as to the pathology. Digitalis seemed of some value, but did not accomplish much. Whisky was used without very satisfactory results, a much better heart-stimulant being found in strychnine. Some clinicians use whisky quite freely throughout the disease. I am inclined to doubt the propriety of this. Strychnine is a most valuable drug in the typhoid stage, and indeed in every stage of the disease. It should be used very freely.

Patients in the typhoid stage should not be kept in one position. Possibly something might be accomplished in some cases by getting the patients out of bed occasionally. This, of course, should be done carefully.—*Medical News, July* 29, 1893, *p.* 117.

9.—THE TREATMENT OF SCIATICA.

By S. Weir Mitchell, M.D.

[The following is an excerpt from a "Clinical Lesson" given by Dr. Mitchell in the Philadelphia Infirmary for Diseases of the Nervous System.]

If in the text books the list of drugs and counter-irritants were followed by a clear statement of what the author advised in mild or in grave cases, these books would acquire a definite and individualised value. One may read all that Gowers, or Gray, or Dana says, and, if young in practice, rise without the least distinct idea as to just how these men treat their own cases of sciatica. You may rest assured that they are more definite in their practice than might be inferred from their books. The treatises on mere therapeutics are yet worse. In one is a list of forty agents which may be used in sciatica.

Let us say we have to deal with a mild case, a first attack. The usual careful search through the organs and secretions has been made. Any obvious constitutional disorder is provided for. What next? As to this, all are at one—rest in bed, constant

and prolonged till recovery is assured. Few things are as valuable as dry cups, if you use them thoroughly and early. Very effective is a double or even a triple row of cups all around and over the notch and down the leg, along the nerve-branches to the ankle. There should be some three dozen cups simultaneously applied, and they should remain on half an hour, but not blister. This measure is repeated the next day ; then two days later, and this alone may answer. Or, if for any reason you cannot do this, put on mustard, at least three inches wide, from notch to ankle ; or, at least, to the knee. Add a little molasses to the mustard, and you can then leave it on for hours ; and this, too may answer. Some of the elder doctors, like Pearson, knew the fact that very extensive moderate counter-irritation is often better than limited and more severe attacks on the skin by irritants.

If these means fail, what is to be done next? As to this I hesitate no longer, but go on at once to the means I now employ in chronic cases. But, at the beginning, and perhaps later, until you can permanently ease the ache, it is needful sometimes to use narcotics. Cocaine is the best, in from one-fourth to one-half grain hypodermatic injections. How rarely we use narcotics here, even in our worst cases of sciatica, the resident physicians very well know. If you prefer morphine, give one dose at about 8 or 9 p.m., and get rid of it soon.

But suppose the disease intractable? Let us take the case in which mild irritants, rest in bed, and constitutional means have failed ; or that of the old hospital guest who has carried pain with him from ward to ward this year or two.

Consider a moment the attitude and ways of a really severe case of neuritis, and let us see what guides these obviously offer. The man lies in bed with the leg slightly bent at the knee and hip. If he wishes to turn he keeps the limb rigid—splints it, let us say, by the use of his muscles, aids it with the stay of supporting hands. Also in the exacerbations, in the anguish of the night's increase of pain, a touch, even slight friction of the bedclothes, increases the distress. It was while watching such a case that it occurred to me to use a splint to keep the limb quiet. If I could by this means forbid the use of muscles, I should thus far secure to the nerve physiologic rest, which, for many reasons, seemed desirable. If *free* motion gave pain, *all* motion might be relatively hostile to recovery. At a much later date I was struck with the familiar fact that contacts—sudden, rough touch, as of the bedclothes—were able to increase the pain in certain cases. It seemed to me as I considered the matter that all contacts might be hurtful, and that by a bandage I could secure the surfaces from these and thus still further insure to the nerve functional repose. Finally, it was possible that the

bandage might, by gentle, firm, general pressure, lessen the amount of blood circulating in the leg, and thus ease, just as one eases an aching finger by firmly grasping it. My success seems to be a justification of the reasoning; but that is of little moment. There is much good treatment we cannot explain.

There are many ways of doing these two things. But whether you suspend the leg in a splint, or use wire or moulded splints, the splint must check motion at the hip and knee. This is the essential matter. The bandage must be pure flannel, and reach from foot to groin. I have used rubber or elastic stockings, and also combined the splint with pressure by plaster or other splint dressings. Practically here we use for all true sciaticas a firm bandage from foot to groin and reapply it twice a day. The leg is slightly bent at the knee, and kept extended at the thigh, and in this position secured to a light side-splint from axilla to ankle by a few turns of a bandage. Care is, of course, taken to prevent pressure on the heel. After a few days the joint-angles are slightly changed at each dressing. Still later, as the pain fades, the joints are mildly and passively exercised whenever the bandages are renewed. Usually three weeks must pass before we can begin to abandon treatment; a much longer time may be needed for old cases. Finally, we take off the splint *in the day* but leave the bandage on. At night we replace the splint. Later we give up the splint and, with the presence or absence of pain as our sole guide, in like manner we omit the bandage, now in the day, and finally at night, but not at all until the patient has begun to move about, and perhaps not then.

Meanwhile with cod-liver oil, iron at need, good diet, care as to the bowels, never allowing a costive passage, forbidding effort at stool (preventing it by hot enemas)—by these means, I repeat, we carry the man through. When the pain has quite gone we use mild massage once a day before replacing the bandages. The process must be careful, with avoidance of roughness.

There may be left, near the close of this treatment, one or more points of persistent pain, not often severe. These are best treated by counter-irritants, the best being the light touch of a white-hot Paquelin button, or a small blister.

The getting up of a severe sciatic case is not unimportant. Motion, the full use of the leg and buttock muscles, and the pressure of the hard edge of a chair, or close stool, are likely to bring back pain. Hence, *we do not allow a man to sit at all the first week* that he is up. He must at first stand, and then walk, but always, whether he walk or stand, it must be with the aid of crutches. He may be upright, on a bed, but not seated. Electricity is rarely needed, even if there has been much wasting. With exercise and massage, or without the latter, the muscles easily get strong.

I have said no word of the use of continuous cold so much employed here before the bandage and splint combined were found to triumph readily over most cases. It is still occasionally employed. It gives us a resource of great value if the less troublesome plan fails ; and failure is rare unless the neuritis has gone up the nerve into the sacral plexus, or unless the pain is really spinal in its origin. My former published cases involved ice and splint-rest. Those I have shown you of late were treated chiefly with the tight bandage and long splint, to which you may add ice-bags at need. The rapid gain to be had in an old case of sciatic pain out of these means —the flannel bandage, splint-rest, and ice—must be seen to be fitly appreciated, and I may add that in mild cases the tight bandage used alone is often of value. I do not claim for these simple means any such certainty as seems usually to be demanded from novel methods. I find, however, that I rarely fail, and that my colleagues, like myself, are using these means.

You may with reason ask what I do if the treatment by splint-rest and bandage, or by splint-rest and ice, fail. At first, to clear my experimental therapeutics from needless doubt, I used these means only in cases which I was sure were sciatic neuritis, and this alone. Of late, and since I felt secure as to my process, I and others have used these means in cases of more dubious nature—in double leg-pain, in those who had certainly troubles in the lower cord. In such examples of sciatic pain of central origin there have been many failures to record—many cases in which splint-rest did no good, or little. In the true sciatic cases which finally defy all medical means, there remains for consideration nerve-stretching. I have seen it fail when my own milder means succeeded. I believe that when surgical nerve-stretching is employed we should at once follow up its use by that of the roller and splint-rest. Some of the relapses which follow its successful use have, I am sure, been due to neglect of the precautions with which in every case of neuritis I desire to surround my patient. In conclusion, I desire to add that I do not look upon splint-rest and the bandage as certain to cure all sciaticas ; but as sure to relieve or cure most cases, and as valuable adjuncts to whatever other means becomes desirable.—*Medical News, July* 1, 1893, *p.* 4.

10.—ON SATURNINE ENCEPHALOPATHY.

By Joseph O'Carroll, M.D., Physician to the Richmond, Whitworth and Hardwicke Hospital, Dublin.

[In an important paper containing the records of four cases, Dr. O'Carroll draws attention to a group of manifestations due to

lead intoxication, which is hardly noticed in the text-books, but deserves to be kept in mind in dealing with obscure cerebral cases. We reproduce here only an excerpt from Dr. O'Carroll's communication.]

I venture to put forward a classification of the symptoms of saturnine encephalopathy which will have the merit of simplicity, only premising that any combination of such symptoms and a wide range of variability in the mode of onset and the progress of the case are possible. The phenomena may be—

(*A*) Motor—general or partial in extent; paretic or convulsive in character.

(*B*) Sensory—local or widely diffused; common or special in character.

(*C*) Mental—difficult to be classified, but usually falling under one or more of the following forms—(*a*) Hysterical. (*b*) Delirious, simulating acute mania; quiet or furious in character. (*c*) Delusional: presenting types akin to chronic delusional insanity; general paralysis of the insane, or melancholia. (*d*) Stuporose or comatose.

This classification broadens out the signification of saturnine encephalopathy so as to include, as it ought to do, all the phenomena of cerebral poisoning by lead, whether the disease stands out as a distinct individuality as in Tanquerel's case, or manifests itself, for instance, in a general paralysis indistinguishable from that ascribed to syphilis or intemperance, or a transient hemiparesis such as occurred in my second case. On the other hand, it would not be applicable to head symptoms only secondarily associated with lead, such as a cerebral hemorrhage resulting from vasorenal degeneration caused or accelerated by chronic plumbism. I had under my care a few years ago in the Whitworth Hospital another Scotch plumber, who, about a fortnight before, had fallen in a fit while working on a lead roof in a country house, and who presented the typical mental picture of general paralysis. He went from me to the Richmond Asylum, and I believe ran the ordinary course of the general paralytic. I have no proof that his condition was due to lead-poisoning, but I think it was at least as likely to be the cause as those one usually looks for. He was an elderly man with grown-up sons, was not a heavy drinker, and was in constant work and therefore constant contact with lead. Whatever the cause in this case, lead-poisoning is a well-recognised cause of general paralysis, and I have shown by my first case that it may set up a pseudo-general-paralysis and a transient melancholia, from which recovery may ensue on withdrawal of the cause. Clearly, if general paralysis or melancholia be producible by lead-poisoning, these conditions, when so produced, must take rank under the general term encephalopathy.

When, in persons who have been in any way subjected to the influence of lead, any group of symptoms, such as I have detailed, present themselves, without other readily ascertainable cause, the physician should ask himself whether lead is *the* cause, and even though he be unable at once, or perhaps at all, to decide the question, he will, in the majority of cases, be safe in forbidding further contact with lead. For even though lead be not the prime agent in producing the morbid condition, one is justified in suspecting that it will be likely to aggravate it.

For the diagnosis of a lead-causation of cerebral symptoms, a course of iodide of potassium will be of use, though it is subject to two disadvantages—it may, for a time at least, make the symptoms worse, and it does not help us to eliminate the suspicion of syphilis. I need hardly add the truism that even if the symptoms seem to be bettered by the iodide, and even if syphilis be completely excluded, it by no means absolutely follows that they were due to lead.—*Dublin Journal, January*, 1893, *p.* 15.

11.—ON FUNCTIONAL OPHTHALMOPLEGIA WITH GENERAL PARALYSIS AND IMPLICATION OF CRANIAL NERVES IN YOUNG WOMEN.

By C. W. Suckling, M.D., M.R.C.P., Professor of Medicine, Mason College, Birmingham.

I have recently met with two cases in young women of ophthalmoplegia with general motor weakness and other paralytic symptoms, which are very similar to two cases recorded by Dr. Bristowe, and which I believe illustrate a distinct type of disease allied closely to exophthalmic goître. The affection is probably functional, and in my opinion is decidedly not hysterical. In my two cases exhaustion seems to have been the exciting cause, and in each case there is a neurotic family history.

One patient is 18 years of age and very tall, the other 21 years and tall also. Both came to me complaining of general weakness. One patient is now quite unable to stand, her knees giving way under her, and for some months past she has fallen down at times; the other patient can only walk about a hundred yards and is then exhausted. Both patients are unable to hold their arms out or to place their hands on their heads, complaining that their upper limbs are very heavy. In both, the movements of the eyeballs are much restricted and attended

with nystagmus, there being ophthalmoplegia externa but on implications of the internal muscles. In both there is diplopia and squinting at times.

In both cases there is difficulty of articulation after the patient has been talking for a little time, articulation then becoming an effort and the words slurred. There is no aphasia, motor or sensory. In both cases there is some difficulty of swallowing, and in one case after mastication the lower jaw drops for a time. In both cases mastication is difficult. In neither case has there been headache, vomiting, epileptic attacks, febrile attacks, nor exophthalmic goître. In one there is slight chorea present. Both patients have been ailing about three years, the illness in each commencing gradually and slowly increasing, the prominent symptoms being general weakness. In neither case is there any loss or perversion of sensation or affection of the special senses. The reflexes are the same in each case, the knee reflex being a little increased, but there is no ankle clonus. In one patient the hands and feet are always cold and blue, and the plantar reflex, though at times present, is generally absent. The fundus occuli is normal in each case. In both cases there is no disease of any thoracic or abdominal origin, and no urinary affection. In both there is complete command over the bladder and rectum. In neither case has there been any symptom of hysteria nor any mental peculiarity.

In one girl there have been suffocative attacks, the recurrence of which she greatly dreads. When I attempted to examine her larynx an attack was brought on by my slightly pushing her head backwards. She became cyanosed, and inspiratory stridor was well marked. While she is resting breathing is quiet and easy, but any effort causes slight inspiratory stridor. She is always propped up in bed, and cannot lie down, dreading the difficulty of breathing which is apt to ensue if she does so. Although I have not seen the vocal cords in this case, I feel sure that there is paralysis of the abductor muscles, and I consider the patient to be in great danger. I am impressed with the relationship of exophthalmic goître to this affection. At the present time I have two cases of exophthalmic goître under my care, in one of which there is ophthalmoplegia externa and in the other paraplegia. I met with one of these cases of ophthalmoplegia some months before the other, and did not at all understand the case till I met with the second one. I showed both patients before meetings of the Pathological and Clinical section of the local branch of the British Medical Association a few weeks ago.

These cases have not exactly the symptoms which were observed by Dr. Bristowe in his, but they are evidently of the same nature, and, in my opinion, prove that there is a functional

disease which chiefly affects young women, and which is characterised by ophthalmoplegia, more or less complete, with other motor symptoms, such as hemiplegia, general paralysis, dysphagia, dysarthria, &c., and that the affection is chronic and closely allied to exophthalmic goître. Recovery may take place, or the patient may die from paralysis of the abductor muscles of the vocal cords or from some intercurrent disease, for example, bronchitis or pneumonia. The affection is probably one of the motor nuclei in the iter and floor of the fourth ventricle, and the general motor paresis is probably due to extension of the disease into the motor tracts. In both my cases the nuclei of the third, motor nuclei of the fifth, nuclei of the facial (slightly) spinal accessory, and hypoglossal nerves were probably affected. In both cases also the shoulder muscles were most affected, the nuclei for the movements of the shoulders being the highest. A lesion spreading downwards along the motor nuclei would involve these first. There were no electrical alterations in either case.

Dr. Bristowe, in his clinical lectures on diseases of the nervous system, describes cases of what he calls functional ophthalmoplegia. Three cases are described, one of which proved fatal from bronchitis, in which the necropsy revealed no lesion of the medulla or pons, but the condition of the nuclei of the third nerves was not made out. One case recovered, and the other improved. Two of the cases occurred in young women, the third in a man. All the cases were chronic in duration, lasting two years or more. In two of the cases right hemiplegia occurred with epileptic fits at intervals, the fits being preceded by a rise of temperature; in one of these cases there was hemianæsthesia. In the case of the man there was ophthalmoplegia externa and interna, partial anæsthesia of the head, neck, and chest; epileptic fits and attacks of intense dyspnœa dependent upon paralysis of the abductors of the vocal cords. The case of the man was probably dependent upon degenerative changes induced by syphilis.

The cases of the two women much resemble the two cases which I record. In one of Dr. Bristowe's cases exophthalmic goître had preceded the ophthalmoplegia; in the other chorea developed during the progress of the illness.

Dr. Bristowe did not consider his cases to be hysterical for the following reasons:—(1) The gradual and uniform progress of the symptoms from bad to worse: there was never any variability, never any shifting of paralysis or anæsthesia—whatever fresh symptoms accrued were permanent; (2) the character of the fits, which were clearly epileptic; (3) the remarkable prevalence of febrile temperatures without any obvious cause.

Dr. Bristowe is of opinion that the disease was functional, affecting the floor of the fourth ventricle and walls of the iter, with extension into the neighbouring sensory and possibly even neighbouring motor tracts.—*British Medical Journal*, *March* 25, 1893, *p.* 634

12.—ON PERIPHERAL BIRTH PALSY OF THE ARM.

By William Gay, M.D., M.R.C.P., Late Clinical Assistant Great Ormond Street Children's Hospital.

Peripheral birth palsy of the arm has received but scant notice in this country. Evidence of this is to be found in the first number of the *Archives of Surgery*, where Mr. Jonathan Hutchinson publishes a case of peripheral birth palsy, and expresses his belief that it is the first one recorded. Sporadic cases have been described since 1851, when Danyan published a very typical example of the affection. This was followed by Roger's case in 1864 and Guéniot's in 1867. To Duchenne, however, belongs the credit of having so fully described the condition that very little addition to our knowledge of it has since been made. Peripheral birth palsy is probably not at all rare. Duchenne mentions that he met with four cases, complicated with dislocation of the shoulder, in the course of a month, and Suckling that he often saw cases of the affection at the Birmingham Children's Hospital. I have myself come across at least four instances of it, two of which I will now describe.

Case 1.—A. H., aged 3 months, was brought to the Hospital for Sick Children, Great Ormond Street, on October 18th, 1887. She was the youngest of three children, all born at full time (1) died at birth, very large, had to be destroyed: (2) a boy of two years, the labour was very tedious, and he had a "dropped" arm for a week; he looks healthy, had thrush, which "went through him," no other evidence of specific disease; (3) patient, breech presentation, labour twenty-four hours, right arm above head. Dr. Shand, of Caledonian Road, London, replied to an inquiry of mine that there was great difficulty in getting the arm down, and that "all the children were unusually large at birth." There was no instrumental interference. The right arm was noticed paralysed from the first, and hung quite flaccid. When brought to hospital the shoulder was found movable in all directions, but not quite so freely as the left. The elbow was extended, and there was slight resistance to flexion, which was, however, easily overcome. The wrist was dropped, the fingers extended at the metacarpo-phalangeal joints, and flexed at the inter-phalangeal; the thumb extended and adducted. There was no

very evident wasting, except of the thenar and hypothenar eminences, and the right shoulder was not quite so rounded as the left. Upon careful measurement the right forearm and upper arm were found to be $\frac{1}{8}$ to $\frac{1}{4}$ in. smaller in circumference than the left, and the muscles were much more flabby. The whole palm was markedly flattened; no evidence of paralysis of cervical sympathetic. Electrical examination unsatisfactory on account of screams and struggles of child, but it was evident that there was no response of the muscles of upper arm, forearm, or hand to a faradic current, which caused the muscles of left arm to contract with ease. The whole limb was colder and bluer than the left, and the finger nails (at 5 months) had a distinct transverse ridge separating the distal brownish dead nail from that which was healthy, and composed about two-thirds of the whole. The nails of the left hand were normal in their entire length. Sensation not accurately tested, but faradic current caused greater struggles when applied to left arm. The right face and leg were normal, and knee-jerks present and equal. There was no evidence of any fracture or dislocation of clavicle, humerus, or bones of forearm. This was subsequently corroborated by Mr. Pitts. There was no satisfactory history of syphilis. Like the second child, the patient had had thrush, and, in addition, an indeterminate rash, but nothing more. There was no wasting, snuffles, sore nates, or craniotabes, and the children were all born at full term.

Treatment at first consisted of inunction with mercury, and rubbing the arm with oil. In January, 1888, some iodide of potassium (gr. j. ter die) was added. In February it is noted that there has been some slight improvement. The shoulder can be abducted and the elbow a little flexed, so that the patient can almost raise the arm to her mouth. The wrist and fingers are still quite paralysed. April 9th, 1888: Localised faradisation of arm for past month; can move thumb now. The mercury was discontinued some two months ago, and syr. ferri phosph. co. substituted.

Case 2.—M. H., aged 3 months, brought to the Children's Hospital, Great Ormond Street, early in 1888. Mother five pregnancies (1) child, now 7 years, and always well and strong; weight at birth 11 lbs., no forceps, arm dropped, and useless for a week after birth; (2, 3, and 4) miscarriages at 3 to $3\frac{1}{2}$ months; (5) patient, head presentation, thirteen hours' labour, baby very large (not weighed), delivered with forceps, nearly dead, artificial respiration vigorously carried out. Patient much larger than previous child. No injuries noticed at birth, but right arm observed paralysed from first day. The midwife told the mother that "the shoulder stuck," and expressed her belief that the arm was then injured by the doctor. Patient had had snuffles but

no other evidence of syphilis. Condition when first seen : Right arm paralysed with the exception of the fingers, which have always been freely used. Upper arm slightly rotated inwards, elbow extended, wrist strongly pronated. The right arm can be severely pinched in places without making the patient cry. Transverse ridge on nails of right fingers, about two-thirds down. The paralysed limb can be made to move freely in all directions and without pain. No fracture or dislocation discoverable ; pupils equal and dilate in shade ; no signs of paralysis of cervical sympathetic ; face and legs normal ; knee-jerks active and equal ; head falls to right side, is never held up straight ; there is a scar over right eye (?) due to forceps; no scar in neck. Treatment consisted in localised faradisation and rubbing ; when last seen the patient had practically completely recovered.

These cases are in a way complementary to one another, and illustrate very well the general features of the affection. They also present some special points of interest. In both there was a transverse ridge on each nail of the affected limb between the proximal healthy and distal diseased part. This is, perhaps, most frequently found after acute febrile conditions ; but I have also seen it in three cases of peripheral neuritis, to which peripheral birth palsy is most closely allied. It is not always present in the latter affection, for its absence has been specially noted in some instances. In both of the above-described cases the children were said to have been very large at birth. An abnormal size of the child, especially of the body, is one of the most frequent causes of peripheral birth palsy, and Case 2 probably illustrates the way in which it happens. After the head is born the shoulder "sticks" on account of the large size of the body, traction is made in the nearest armpit, and the nerves are stretched or otherwise injured. Case 1 exemplifies another common method of causation.

In a breech or foot presentation an arm gets above the head, and in the efforts made to bring it down by means of a traction hook or the bent finger one or more of the bones may be fractured or dislocated and the nerves injured. Such an accident does not necessarily betray any want of skill on the part of the operator, for one of the recorded cases occurred in the practice of Tarnier himself. In a few rare cases the paralysis resulted from the pressure of a much curved forceps blade, which had gripped a spot in front of the trapezius and so damaged the subjacent nerves. A mark or scar generally remains to indicate the origin of the affection. In two cases in which this accident is recorded death occurred in a few days, probably as a result of the injuries.

The distribution of the paralysis varies considerably, according to the nerves damaged. Sometimes the face is paralysed on the same side as the monoplegia ; but in Danyan's case the affection

was bilateral. A not uncommon form of paralysis is that which corresponds with Erb's upper arm type, in which the deltoid, after the supra-and infraspinatus, biceps, brachialis anticus, and supinators, are implicated. This would probably result from damage to the roots of the fifth and sixth cervical nerves, though Erb believed that the sixth root only supplied this group of muscles. In other cases the above muscles more or less completely escape, and the paralysis falls chiefly upon the muscles of the forearm and hand, pointing to an affection of the lower roots of the brachial plexus. More frequently, however, most of the roots of the brachial plexus are involved, but some more seriously than others. In such case improvement occurs up to a certain point, but a greater or lesser amount of paralysis persists. The triceps nearly always escapes, probably because its nervous supply is derived from so many roots—fourth to eighth cervical. The sympathetic is very rarely included in the affection.

Seeligmüller has, however, published two cases in which the usual symptoms of paralysis of the sympathetic were present, namely, retraction of eye, contraction of palpebral fissure, myosis, contraction of pupil to light, but no dilatation in the shade or upon cutaneous irritation. In both of his cases the incidence of the paralysis was chiefly upon the muscles of the forearm and hand. There is never any active contracture—that is, a persistent shortening of muscle dependent upon spasm of the fibres and not upon tissue change. The limb nevertheless assumes certain positions on account of the pull of the antagonists of the paralysed muscles. One of the commonest of these is internal rotation of the humerus, chiefly resulting from paralysis of the infra-supinatus and the consequent unantagonised pull of the subscapularis. The elbow is usually extended on account of the frequent affection of the flexors. The wrist is generally pronated because of supinator paralysis, and it is sometimes also dropped. When the small muscles of the hand are affected the palm is flattened out in consequence of wasting of the thenar and hypothenar eminences, the proximal phalanges over-extended, and the two distal flexed from paralysis of the interossei. All these positions assumed by the limb are easily overcome, resulting as they do, not from spasm, but from a physiological condition of tone of certain unantagonised groups of muscles. The electrical examination can only be very incomplete in most of these cases on account of the cries and struggles of the patients. It can usually, however, be shown that the faradic contractility is diminished or gone, and sometimes that there is an increase of voltaic irritability and the reaction of degeneration is obtained. It is very difficult to test the degree and extent of anæsthesia in young children, but it is generally evident that

there is some loss of sensation of the paralysed as compared with the healthy limb. Trophic disorders are rare. In a case published by McAldowie it is noted that for five months the affected arm did not grow at all, and the ridged nails of my own cases may be taken as evidence of nutritional disturbance. Vasomotor troubles are more common.

The diagnosis is not always so easy as might at first appear. A case may not come under observation until the early history is forgotten, and as at any rate one instance is recorded in which several members of a family were successively affected, the absence of such history might lead to the belief that they were suffering from a hereditary form of amyotrophy. In the cerebral variety of birth palsy it is extremely uncommon for a single limb to be implicated, and difficulty can only arise when the arm is the part affected, for, as far as I know, no case has yet been recorded of peripheral birth palsy of the leg. The paralysis of cerebral origin is at one time or another associated with a certain amount of spasm, giving rise to a true contracture, which contrasts with the simple flexion or extension of the joints occurring in peripheral paralysis. Duchenne has recorded a very interesting case, and one very difficult to explain, in which there was spasm of some of the muscles of the arm associated with atrophy of the interossei and thenar muscles. There is no defect of sensation in cerebral cases, but convulsive seizures of the Jacksonian type may possibly occur. Peripheral birth palsy is not likely to be mistaken for cerebral syphilis or infantile paralysis, since the latter occur only during the later periods of infancy. Parrot's or pseudo-paralysis may occasion some difficulty, though only rarely, for its most frequent date of onset is from the second week to the second month. Porak, Parrot, and Guénoit have, however, described cases existing from birth, and as in two of these the paralysis was associated with certain fractures, the likeness to peripheral birth palsy was very close indeed. The points of distinction are these. Pseudo-paralysis is, as the name implies, no paralysis at all, and if the limb be carefully watched movements of some of the distal joints may generally be observed ; although, too, none of the cardinal signs of syphilis are at first present they soon develop, and there is periostitis, separation of epiphyses, or some evidence of syphilis of the long bones. The course of the disease is at first progressive, and its termination is either towards rapid recovery under treatment or death. In peripheral birth palsy, on the other hand, the paralysis is at first complete, there are not necessarily any signs of syphilis, and the condition is chronic. Besides, the muscles do not respond normally to the faradic current, and the paralysis is limited to one arm and possibly the face of the same side.

Ross considers the prognosis unfavourable, but Gowers asserts that most obstetrical cases recover slowly. The records of such cases as I have been able to consult would seem to show that complete recovery is rare, but that no improvement at all should take place is perhaps equally rare. The rule is that some movements eventually become possible, but, compared with those of the healthy limb, are weak and ill-sustained; for example, a child whose arm hung pendulous by its side at birth, may after a time be able to raise the hand to his mouth. That such cases, which have possibly been under treatment for some months, should completely recover when lost sight of appears very improbable. The retention of faradic contractility, though diminished, shows that the rupture or laceration of the nerve trunks is not complete, and is therefore a favourable prognostic sign.

Electricity is the only method as yet suggested for the treatment of these cases. This, to be successful, must be commenced at an early stage of the disease, and carried out in a systematic manner. Henoch truly observes that "the persistent employment of electricity can be of service only so long as the nerves have not undergone fatty degeneration and the muscles still react," that is, to faradism. There are chiefly two indications in carrying out the electrical treatment, (*a*) to play upon the affected nerve roots, and (*b*) to preserve as far as possible the nutrition of the muscles. The former is best obtained by placing a comparatively large electrode over the supra-clavicular fossa, where the roots of the brachial plexus lie, and another in the armpit. The current to be employed in this area is either the faradic or interrupted voltaic of moderate strength, and the application should be continued for five minutes or more. Each of the affected nerve trunks may be treated in a similar, though less thorough, manner. The second indication is fulfilled by subjecting the paralysed muscles to a galvanic or galvano-faradic current with both poles successively for about five minutes. This treatment should be continued for several weeks.—*British Medical Journal*, *April* 8, 1893, *p.* 734.

13.—PAINS AND JOINT DISEASE IN CONNECTION WITH HEMIPLEGIA.

By S. Weir Mitchell, M.D.

[Narratives of some important cases illustrative of Dr. Weir Mitchell's remarks are here omitted.]

The late Prof. John K. Mitchell first called attention, in 1831, to the production, through spinal injury and sequent disease

of joint-lesions often indistinguishable from the lesions of rheumatism. Allison, in 1838, described joint-lesions following hemiplegia. Drs. Morehouse, Keen, and myself reported numerous examples of joint trouble caused by peripheral nerve-lesions, and since then I and others have added largely to the literature which deals with nutritive changes occasioned, early or late, by cerebral and spinal disease, and by the diseases or traumas of nerve-trunks.

It is now generally admitted that the joint-disorders which occasionally follow hemiplegia from cerebral lesions owe their origin to a descending degenerative change involving the motor tract and finally the cord. If this be so, we must also admit the fact that these changes are in certain cases very rapid, as I have now seen at least four cases, all of right-sided cerebral lesion, in which joint-lesions, one or more, followed within four days. Then there is, too, a small group of cases not alluded to in the books, in which the sequence is as follows:—(1) Unilateral muscular or fibroid pain and soreness; (2) tenderness of certain joints, slight swelling, and pain only on one side—repeated attacks strictly limited to one side; (3) subsequent cerebral clot and paralysis of the painful side; (4) increase of joint-lesions on the palsied side, and generally chronic unilateral joint trouble—absence of cardiac disease.

Another type, which, like this, gives us occasion enough to reflect, is this:—(1) Long continued or occasional muscular aches on one side only, without heart-disease or gout; (2) after a year or two hemiplegia of the side thus previously affected; (3) secondary joint-lesions on the same side, becoming chronic.

In a third class, which is somewhat rare, we have as an *immediate* prodrome of hemiplegia acute pain in the muscular masses, so as to be mistaken for muscular rheumatism, but confined to the side, which within forty-eight hours becomes hemiplegic.

I saw many years ago a middle-aged woman who was seized, with no known cause, with violent pain in the right arm and leg. There were no joint-lesions. The pain was agonising. Within thirty-six hours she had a quite complete attack of hemiplegia on the same side, after which the pain slowly faded away and never returned. She made a good recovery, and died, years after, of lung-disease.

To observe one-sided pain or joint-lesions as prodromes or remote antecedents of cerebral lesions is not exceedingly rare. I have seen one such case within a year, and in it the muscular pain, as is not uncommon, slowly passed away with the paralysis.

It is, of course, easy to dismiss these cases as rheumatic, but this will hardly satisfy the modern clinical observer. Certainly

they should suggest inquiry as to whether or not incipient brain-lesions, finally productive of paralysis, may not, either directly or through an influence on the cord, occasion morbid phenomena simulating rheumatic symptoms.

It is, of course, conceivable that the many cases I have seen may, one and all, represent the coincidental occurrence of unilateral rheumatism with a sequence of hemiplegia. But there is another explanation which is possible, and for this reason I desire to call attention anew to the antecedents and consequences of certain hemiplegias. If, as I and others have seen, inflamed joints may follow within from one to four days upon certain hemiplegias, it seems unlikely that their presence is due to spinal changes, or to these alone, unless these changes be far more rapid than we at present conceive them to be. If they are due directly to the immediate influence of the brain-lesion or to its effects on the yet unaltered cord, then even the more remote joint-lesions may have a like origin. Really it does not as yet seem to be quite sure that the cord is always or alone responsible, or that the joint troubles as well as the pain may not have their origin in the cerebral centres.

Another rare consequence of hemiplegia of late origin is the, as yet, undescribed occurrence of nodes on the periosteum. These still further add to the rheumatic picture presented by certain palsied limbs. I speak of these nodes as being, so far, undescribed, for in a wide search I find no mention of them, and they appear thus far to have escaped the attention of clinical observers.

I first saw them some years ago in a workman about forty-five years old. He was a plumber, but had no evidence of lead-poisoning, which, in fact, is scarcely ever seen in this class of mechanics. The patient had never had any genital malady, and was in remarkable health until he had, after over-work in hot weather, an attack of left hemiplegia. Unconscious for a day, he made a fair recovery, except as to his arm, in which during two or three months developed late rigidity and joint-lesions. The knee, which is rarely affected, suffered, although slightly. In examining with care the state of this man's joints, I found, about three inches above the ankle, an elongated, very tender node about an inch wide, and at the insertion of the deltoid a second, still more prominent. Interested in these lesions, I asked Dr. Maury, as an expert in syphilis, to re-examine the case. He came to the conclusion that there were no evidences of this malady. A long and active course of treatment with iodides and mercury failed to alter the nodes in the least degree, and I came at last to the conclusion that, like the joint-lesions, they were indirectly the offspring of the cerebral malady. I have since then seen similar cases.

The mechanism of the production of these very common incidents of hemiplegia is still a difficult question. Perhaps a careful study of the post-mortem chemical state of the muscles may help us. But it should come immediately after death. It is quite possible that the nutritive disturbances of a palsied limb may evolve, locally, products which give rise to these pseudo-rheumatic results, and as nerve-lesions clearly alter the skin secretions, as I have elsewhere shown, they may as likely evolve within the limb chemical products favourable to joint disease. It is not enough to say that these are caused by altered nutrition. The nodes I describe are also one more addition to the resemblance of a palsied to a rheumatic limb, and, small as is their importance, it is, I think, of value to note their occasional presence.

When acute unilateral pain immediately precedes the hemiplegia of the same side—and such a sequence should lead us to reconsider the more doubtful instances, in which pain and joint-lesions more remotely but more continuously antedate the palsy—I have myself no doubt that pain and many other sensations may be of cortical origin.—*Medical News, April* 22, 1893, *p.* 421.

DISEASES OF THE ORGANS OF CIRCULATION.

14.—ON THE VALUE OF VENESECTION IN CASES OF THORACIC ANEURISM.

By G. Newton Pitt, M.D., F.R.C.P., Senior Assistant Physician to Guy's Hospital.

I am anxious to draw attention to the great relief of some of the symptoms which is often afforded by venesection in cases of thoracic aneurism; and to point out that in certain cases venesection may be repeated several times to the great relief of pain, dyspnœa, or coma, when nothing else is of any avail. Further, repeated small venesections occasionally appear to assist in the formation of some clot, and lead to the consolidation and diminution in the size of the aneurism, thus inducing a quiescence of all the symptoms for a time at any rate, but which is rarely permanent.

There can be no doubt that in the great majority of cases a well-marked thoracic aneurism tends inevitably to a fatal result, and that a line of treatment must not be condemned even if a fatal result ultimately ensue.

If the various urgent and painful symptoms which are met with in cases of thoracic aneurism are considered, I trust I may be able to show that some of them may be marvellously relieved by venesection.

Venesection is no new treatment for aneurism, and was most rigorously carried out formerly by Albertini and Valsalva, who also kept their patients on starvation diet, with the object of causing the blood to clot in the aneurism and so cure it. Tufnell also met with considerable success in adopting a less stringent line, but, of late years, increasing experience has shown that a complete cure of a thoracic aneurism by an organised thrombus is so excessively rare and improbable an occurrence that our treatment should be mainly directed to preventing the aneurism from spreading, and to relieving such symptoms as urgent dyspnœa and pain ; and that it is unwise to starve and repeatedly venesect a patient with the intention of trying to fill the aneurism with an organised clot, as this result is impracticable. Let us consider briefly what are the conditions which we have to attempt to relieve :—(1) A paroxysmal cough, sometimes lasting for a considerable time, and occasionally almost continuous throughout the twenty-four hours. This may be due to many causes ; to the pulsating intermittent pressure of the aneurism on the trachea or bronchus, leading to local congestion and irritation ; to the congestion in the pulmonary tissue induced by deficient passage of air past the obstruction ; to the accumulation of mucus in the tube which cannot be readily expelled past the spot ; and to the irritation of the recurrent laryngeal nerve, and of the vagus. Each time the patient coughs the effort strains and distends the aneurism. (2) Dyspnœa, mainly due to compression of the trachea by the aneurism, but also to failure of the right side of the heart. (3) Pain due to pressure on an erosion of adjacent structures, whether bony or not. (4) Attacks of unconsciousness and coma, due to too low a blood pressure in the cerebral arteries. (5) Extension of the aneurism, owing to yielding of its wall. (6) Dysphagia, due to pressure on the œsophagus.

I have several times seen each of the above important symptoms relieved by venesection, and occasionally after two or three small abstractions of blood the aneurism has diminished in size, the pulsation has become less marked, and the patient has been restored to a state of comparative comfort.

A reaction has of late years set in against venesection and I think that there is a general consensus of opinion against repeated venesections and starvation carried out rigorously, with the view of curing the aneurism. A nutritious diet is undoubtedly beneficial, but it should be in as digestible and

unbulky a form as possible, and if there are any urgent symptoms of pain or dyspnœa, the amount of liquid should be reduced to as little above half a pint as the patient is able to bear without extreme discomfort, as this limitation is undoubtedly of value in diminishing the severity of the symptoms. But some patients are unable to reduce the amount below a pint and a half.

In treating a case of thoracic aneurism, we should insist upon a quiescent life, and where the pain is severe, and there is evidence of an active increase in the size of the aneurism, absolute rest in bed is essential.

Iodide of potassium is generally beneficial. It should be given in gradually increasing doses, but the amount must stop short of that which increases the pulse-rate.

The pain may be much alleviated by morphia and blisters, but where there is evidence that the aneurism is enlarging, a moderate venesection and the application of some leeches will often be more efficient.

I have observed alleviation of all the main symptoms from venesection, but I would not advise it as part of a routine treatment, although some of the aneurisms diminished markedly in size after three or four abstractions of blood.

It is my object to recommend it as the treatment above all others for the relief of the paroxysmal attacks of urgent and intense dyspnœa, which often form the most distressing feature in these cases. In my experience there is no treatment which is capable of producing so marked and immediate an improvement.

Bromides, morphia, aconite, and the inhalation of nitrite of amyl or of chloroform will relieve many of the attacks, but even when all these have failed, a venesection may be at once efficient. Laryngotomy in such cases is of no value, as the obstruction is not due to the paralysis of one vocal cord, but is largely produced by the compression of the trachea by the aneurismal sac; with the loss of the blood by venesection, the aneurism may be observed to pulsate less vigorously, and the pressure on the tube is thus diminished.

The results are even more striking in the more severe conditions, where the patients have become unconscious, comatose and moribund. After a few ounces of blood have been taken away, they generally recovered consciousness and the urgent symptoms not infrequently passed off and generally no other treatment is of any value. This may be repeated with each recurrent attack with success, and towards the end it may be necessary to repeat it more than once in the day. It will prolong the patient's life, and alleviate his sufferings, but when it is necessary to repeat the operation frequently, it only delays, but cannot avert, a fatal ending.—*Medical Press and Circular*, *May* 10, 1893, *p.* 478.

15.—ON THE SYMPTOMS AND TREATMENT OF ALCOHOLIC CARDIAC FAILURE.

By Graham Steell, M.D., F.R.C.P., Physician to the Manchester Royal Infirmary.

Proceeding with the examination of a case of alcoholic heart-failure, at the outset we shall find the three cardinal symptoms of heart-failure in general, and irrespective of its cause :—(1) Dyspnœa, (2) dropsy, and (3) congestion of the liver.

(1) *Dyspnœa.*—In alcoholic heart-failure dyspnœa is as early and pronounced a symptom as in other varieties of heart-failure. Rarely the patient seems not to have given heed to it before he discovers dropsy. When albumen is present in the urine, and does not quickly disappear, the absence of a history of dyspnœa *preceding* the dropsy embarrasses the diagnosis. At first the dyspnœa is a purely cardiac dyspnœa, but soon bronchitic signs are detected, and the patient coughs and expectorates. Pleural effusion, inflammatory or dropsical, sooner or later supervenes, and finally, if the course of the case prove unfavourable, pulmonary apoplexy occurs. Dyspnœa is a valuable symptom in the diagnosis of cases which are accompanied by albuminuria, and in which the distinction between Bright's disease and alcoholic heart-failure has to be made. Although the presence of dyspnœa in some degree has been admitted to be a normal feature of acute Bright's disease, it is a much more pronounced and specially an *earlier* symptom in heart-failure. The dyspnœa of *chronic* Bright's disease is, in the great majority of cases, the dyspnœa of secondary heart-failure.

Dropsy.—Wide distribution over the surface of the body and caprice of localisation are its special characters. The upper extremities are often involved, the surface of the trunk almost invariably so, and the scrotum frequently. The following instances of caprice of the localisation of the dropsy may be given in illustration :—great swelling of the upper part of the chest, the neck and arms, while the legs at the same time were little if at all œdematous (the dropsy thus simulated that of mediastinal tumour) ; huge "cushions" of œdema about the back (when any dropsy is present some "pitting" will usually be found over the small of the back and lumbo-sacral region) ; and, œdema of the scrotum without obvious dropsy elsewhere. The face and eyelids seem, as a rule, to escape. I am anxious not to give undue weight to absence of marked œdema from the eyelids in the dropsy of alcoholic heart-failure as a feature distinguishing this dropsy from that of Bright's disease. I think, however, that in a doubtful case of dropsy, œdema of

the eyelids would be to some extent evidence of Bright's disease and its absence of alcoholic heart-failure.

Dropsy into the serous sacs occurs in alcoholic as in other heart cases. Ascites I will refer to later when the liver is under consideration. It is often very small in amount, or absent, when the abdominal walls are very œdematous.

(3) *Enlargement of the Liver.*—It would seem that this feature of cardiac failure has been often misinterpreted in alcoholic subjects, and attributed to active rather than passive congestion of the organ—been regarded, in fact as a more direct result of alcoholism than it really is. Speaking generally, it may be said that cirrhosis results most commonly from spirit drinking, and heart-failure from beer drinking.

The enlarged tender liver of heart-failure seems to me to be a much more prominent feature of the condition than the reference to it in text books would seem to indicate.

The tenderness on pressure presented by the engorged liver of heart failure has no doubt contributed to the condition being in alcoholic subjects often mistaken for one of early interstitial hepatitis. Jaundice is as common in the one condition as in the other. The engorged liver of heart disease moreover always feels indurated to some extent ; the capsule is rendered tense, and to this latter circumstance the tenderness on pressure is probably due. It seems only likely that the two conditions—engorgement of the liver from venous stasis, and the early stage of interstitial hepatitis—are occasionally combined. The great distinguishing feature is the rapid subsidence of the passive congestion on restoration of the circulation. I have repeatedly arrived hastily at the conclusion that an alcoholic subject with heart-failure had also interstitial hepatitis, and have been surprised a few days later by the disappearance of the liver tumour as the circulation became restored.

Albuminuria is common in the heart-failure of alcoholism as in other varieties of that condition. The quantity of albumen present in the urine is often large at first and then rapidly diminishes, frequently a trace of albumen remains long persistent. Hyaline and granular casts are often found in the deposit while the albumen is in large amount and may even be found, from time to time, when the albumen has become very much diminished. In these latter cases the kidney has probably sustained some slight permanent damage.

All the well-known clinical features of heart disease occur in cases of alcoholic heart-failure, as they do in cases of muscle-failure from other causes and in cases of primary valve-lesion, and no useful purpose would be served by reviewing them further. While certain apparent peculiarities in the dropsy have been pointed out it is not contended that the dropsy is

different in kind from the dropsy of other varieties of heart-failure. The differencies which are apparent, probably depend upon changes in the tissues of the dropsical parts or in their nerve supply—such differences are differences in degree and not in kind. The peripheral element is presumably more pronounced than it is for instance in the heart-failure which is the result of rheumatic valve-lesion.

Physical Signs.—The physical signs of alcoholic heart-failure are simply those of muscle-failure of the heart in general. Secondary valve-incompetence frequently results—mitral and tricuspid—but even in its presence probably the more important factor in the production of the disturbance of the circulation is imperfect systole.

Inspection.—A glance at the patient's neck will invariably reveal abnormal pulsation—arterial, or arterial and venous. Usually epigastric impulse is observed ; the apex-beat may or may not be visible. It is evident especially in cases after repeated attacks of heart-failure. In such cases hypertrophy of the left ventricle has been well developed. *Palpation* of the apex-beat will, in many cases, enable us to form an opinion, not only as to the size of the left ventricle, but as to its vigour. Information as to the vigour of the right ventricle may likewise be obtained by palpation of the epigastrium immediately below the xiphoid cartilage. It is upon the results of *percussion* and *auscultation* that we have generally and chiefly to depend. Extension of dulness, both in the right and left directions, is almost invariably observed in alcoholic heart-failure, except in the earliest stage.

Auscultation.—The auscultatory signs of alcoholic heart-failure may be considered in two classes—(1) Modifications of the physiological heart sounds, and (2) murmurs.

(1) The first sound may undergo changes which are difficult to describe in words, but which are easily perceptible by the practised ear. Loss of tone, shortening, assumption of a peculiar "clang," and reduplication indicate some of the changes.

Patients who have atheromatous aortas often have an accentuated aortic second sound, and in all cases when the pulmonary circulation becomes embarrassed, the pulmonary second sound becomes intensified. Reduplication of the first or second sound is not very rare. Although it implies reduplication of a sound, I prefer describing by itself a very common sign, namely—the *bruit-de-galop.* We often recognise reduplication of the first or second sound which are not examples of the *bruit-de-galop.* In other words, the *bruit-de-galop* is something more than reduplication. Besides triple rhythm there is special accent, and the sounds follow one another at certain fixed intervals. Further analysis, if it were

possible, would serve little for the identification of the sound. Fortunately, the ear very easily learns to identify the *bruit-de-galop*, which is a most valuable sign of a failing heart-muscle. It is usually best heard "over the ventricles." The value of this sign is quite as great as that of any of the murmurs which we may hear over the hearts of alcoholic subjects. Often, without there being any murmur, the modifications of the heart sounds which occur are amply sufficient for the recognition of the condition of heart-failure. The *bruit-de-galop* is not unfrequently heard over hearts which also present a murmur.

Murmurs.—The common murmur present in cases of alcoholic heart-failure is that of auriculo-ventricular regurgitation—of mitral or tricuspid incompetence. The murmur is frequently developed on both sides of the heart, but its occurrence is of chief importance on the left. Venous pulse in the neck in association with tricuspid regurgitation is often a very marked phenomenon. The murmur is at first heard at the back unaccompanied by the first sound; later, provided recovery takes place, the first sound becomes audible along with the murmur; and finally, the latter may be replaced by the former, although the murmur may still be audible at the apex. Murmur often entirely disappears under treatment; on the other hand, no murmur may be audible when the patient comes under observation, there being then only a *bruit-de-galop*, and later, when indications of improvement have shown themselves, the murmur of mitral regurgitation may become audible, but usually only for a time. A systolic murmur is sometimes present in or about the pulmonary area when there is no murmur at the apex, and when there is a murmur at the apex this pulmonary murmur may be as loud as or louder than the apex one. A systolic murmur—generally a slight one—is often present in the aortic area too, so that we may hear a systolic murmur in all four cardiac areas. This occurrence, indeed, is not rare.

The Pulse.—Arterial tension varies within wide limits in cases of alcoholic heart-failure according to the state of the pulse which is normal to the individual before the onset of such failure, and according to the degree and duration of such failure. It may be said that the tendency is towards lowering of tension, but in the early stages of the disease it is not uncommon to meet with pulses of considerable tension. If a patient who has had habitually a high degree of arterial tension comes under observation in the early stages of alcoholic heart-failure, his pulse may be one of fairly high tension; but it will almost invariably be one of lowered tension *for him*, although the degree of lowering may be only slight. It would

seem that it takes some little time for muscle-failure of the heart to reduce the tension of the pulse, therefore fairly high tension is quite compatible with a "labouring" heart.

In cases in which a high degree of arterial tension is present and there is albuminuria, the distinction between alcoholic heart-failure in an early stage and Bright's disease is most difficult, and often can only be made by watching the subsequent course of the illness.

Prognosis.—Surprising though it may seem on theoretical consideration, I believe the prognosis of alcoholic heart-failure, provided the habit is abandoned, to be good. Unfortunately the habit is seldom abandoned, and we find the patient suffering from a series of break-downs on the part of his heart before he succumbs ultimately in the same way as the patient with rheumatic valve-lesion finally succumbs. At the time of the first break-down it may be difficult to detect by percussion the dilatation of the chambers, which is, no doubt, present. In the later periods, when the cavities are much enlarged, the increase in the area of cardiac dulness becomes so marked that one cannot miss it. It is in the late periods, too, especially after more than one break-down, that we find evidence of hypertrophy by some degree of heaving over the ill-defined impulse. Did hypertrophy not come to stay dilatation, could the patient survive? Unfortunately, in the great majority of alcoholic cases of heart-failure, the cause which determined the failure is not removed, and as dilatation of the heart-cavities advances, the attempts at proportionate hypertrophy become feeble and ineffective, and so the case passes beyond hope of recovery. We may with a very great degree of confidence assure our patients suffering from early heart-failure, the result of alcoholism, that they will recover if they will only abandon their vice. The prospect of recovery goes far beyond that indicated by theoretical considerations. As far as heart-failure goes, the patient's life is very much in his own hands, at least in the case of the well-to-do. In the case of the poor man who has to live by the labour of his hands "in the sweat of his face," the chances of recovery, even when the vice is abandoned, are naturally very much less good. The heart is restored sufficiently for the purposes of a non-laborious occupation, but cannot be expected to bear strain.

Treatment.—Having spoken so hopefully of cases of alcoholic heart-failure it is incumbent on me to describe their treatment. The habit of alcoholism must be abandoned as soon as the convalescence is established, but while the patient is desperately ill I do not hesitate to order alcohol freely—in small amount it would be useless. By its use we secure time to bring the patient under the influence of digitalis. Of one fact I think

I can assure the most scrupulous, namely that the free administration of alcohol to the subject of alcoholic heart-failure, when he is *in extremis*, will not interfere with his recovery if this be still possible. On the other hand its withdrawal, when recovery is hopeless, would only add to the bitterness of the cup which the patient has already prepared for himself.

I have no hesitation in making the statement that, speaking generally, there is only *one* remedy for alcoholic heart-failure, and that is digitalis. I use almost invariably Nativelle's granules of "digitalin," for purposes of convenience, as they possess the most active and valuable properties of the crude drug—I may say the best and the worst, that is, the most stimulating to the heart and the most cumulative. The cumulative property proves of great value, however, when we wish to keep up a gentle tonic action upon the heart by a minute dose given at considerable intervals—24, 48, or even 72 hours—in mild cases or during the convalescent stage of severe ones. One granule night and morning I usually find an ample dose, and seemingly equivalent in efficacy to three 10-minim doses of the tincture of digitalis. If it is desired, in exceptional cases, to "push" their action by administering three granules in the 24 hours, care should be taken to give a granule ($\frac{1}{240}$th gr. of the active principle) every eight hours, and *not* three in 12 of the 24 hours. When a diuresis is established the quantity of urine affords the best indication for administering the drug; when the quantity of urine falls off the dose is to be diminished—say to a granule in 24 hours, and later to one in 48 hours. When no diuresis has been established, however, it is often difficult to know how long to continue the drug. When doubt on the point arises, it is best to intermit the administration of the "digitalin." Sometimes the physiological action goes too far without a diuresis being produced, and only when such physiological action is passing off does a diuresis become established. In any case little is lost by intermitting the granules for a day or two, owing to their great cumulative property. The same rules of practice are applicable in the use of other preparations of digitalis. If digitalis will not save a patient, the probability is that no drug will. Occasionally caffeine will act after digitalis has apparently failed but who can eliminate the effects of the previous course of digitalis from consideration of the result in such a case?

Careful attention to the feeding of the patient, and the *occasional* use of a sharp purge to deplete the portal system, constitute other details of treatment. Rest in bed is, of course, essential until satisfactory convalescence, and may alone, in early cases, be sufficient to promote restoration of the circulation and diuresis.—*Medical Chronicle, April*, 1893, *p.* 3.

16.—ON THE TREATMENT OF ANGINA PECTORIS.

By J. Burney Yeo, M.D., F.R.C.P., Physician to King's College Hospital.

Anginal attacks occurring in persons who present signs of anæmia or wasting, and defective nutrition generally, must be encountered, in the first place, by careful attention to hygienic measures. Such patients must be removed from all causes of physical or mental strain. Their life must be one of complete repose of mind and body—a repose alternated with gentle physical exercise, always stopping short of the slightest fatigue; it is good for them, however, to be much in the open air, driving, sailing, or reclining, and in a mild climate, when possible, so that they shall be protected from the injurious effects of cold, exposure to which certainly favours the occurrence of these attacks, not only by lowering the nervous force, but by checking free cutaneous circulation and elimination.

An almost exclusive milk diet will be found to be of great service in many cases. I have found a wine-glassful of cream mixed with the same quantity of hot water, and a teaspoonful of sal volatile added, to be an excellent food on getting up in the morning. The lighter kinds of fish simply grilled, and eaten with a squeeze of lemon and plain uncooked butter, are excellent; lightly boiled or poached eggs are permissible, if there is no gouty tendency; and also good *consommé*, flavoured with vegetables: the lean of fresh meat passed twice or three times through a mincing machine, and then lightly cooked in a *bain-marie*, is most digestible and nourishing; and of great value when there is masticatory difficulty, as is so often the case; fresh vegetables in the form of *purées* are useful, and so is the pulp of cooked fruits, as affording the necessary variety in the food and promoting the action of the bowels. Light milk puddings are also commendable. We should moreover see that a sufficient quantity of pure water is consumed, for eliminative as well as assimilative purposes.

The co-existence of dyspeptic states must be treated in accordance with general principles— an alkaline bitter stomachic, composed of sodium bi-carbonate, nux vomica, and calumba, an hour before the two principal meals, will be found valuable. Or in other cases a dose of dilute hydrochloric acid in compound infusion of orange-peel after food, with or without the addition of a few grains of pepsin, may be given. Flatulent distension during digestion will often be effectually relieved by a pill containing a grain of thymol or a drop of creasote taken directly after food. Regular evacuation of the bowels of fæcal accumulations is most essential. For some persons the best aperient

is a dinner pill, containing a grain or two of aloes, $\frac{1}{2}$ grain of powdered ipecacuanha, a grain of nux vomica powder, and a grain of soap; this may be taken directly before or after dinner. Should such a pill prove insufficient, it may be followed occasionally by a teaspoonful of Carlsbad or Homburg salts in half a tumblerful of hot water the next morning. In cases where there is sluggishness of liver, with bile-stained conjunctivæ, a few grains of blue pill, or $\frac{1}{6}$ or $\frac{1}{4}$ of a grain of podophyllin at bedtime, with 2 or 3 grains of compound rhubarb pill, may take the place of the dinner pill.

Certain of the slighter forms of angina are no doubt dependent on, and the more serious forms may be provoked by, the habitual use of certain substances which come, in course of time, to exercise a toxic action on the heart. This is particularly the case with *tobacco*, the toxic effects of which on the heart are often delayed until, or even after middle age, when they will perhaps somewhat suddenly make themselves felt. Whenever anginal symptoms arise, we should always insist either on complete abstinence from alcohol, or on its very sparing use in a very dilute form. Tea and coffee are often provocative of the slighter manifestations of cardiac pain and discomfort, and it is noteworthy that they are particularly prone to aggravate, or rather to be aggravated by, any emotional disturbance. All these toxic agents must be forbidden so long as any tendency to anginal attacks exists.

When renal elimination is defective from the co-existence of renal degeneration, we must act freely on the bowels and on the skin. When the kidneys are sound, the free use of pure water, or some suitable mineral water having some slight stimulating action on the kidneys, may avoid the necessity of free purgation; but in all cases a thorough daily evacuation of the bowels should be procured, and free action of the skin should be maintained by warm baths and frictions. In gouty cases, and in all cases of defective elimination, a careful and spare diet, sufficient, but avoiding all excess, should be prescribed. Animal food should be taken only in great moderation, and fresh vegetables and fruit, carefully cooked and prepared so as to be made easy of digestion, should take its place. All alcoholic stimulants should be avoided; and when milk is not unacceptable to the patient a few weeks of an exclusive milk diet may be advantageous.

In anæmic cases and cases of temporary cardiac debility from removable mal-nutrition, we shall find the milder preparations of iron, combined with small doses of digitalis, of great service. In other cases we shall find *arsenic* of greater value than iron; and here, again, there is a general consensus amongst experienced physicians as to the value of arsenic in the treatment of cases of angina pectoris in the intervals between the paroxysms.

We cannot too strongly insist on the value of strychnine as a cardiac tonic, especially in remediable states of cardiac asthenia. In highly neurotic cases much benefit may be derived from a combination of iron or arsenic and potassium or sodium bromide, in 5 to 15-grain doses; and in the same class of cases the valerianate of zinc is also of great service; it may be given in grain doses in a coated pill thrice daily, after food; and sometimes the combination of $\frac{1}{60}$ of a grain of phosphorus with it renders it a more valuable nerve-tonic.

There is another remedy which is of very great value in the treatment of angina pectoris, especially when it is associated with obvious signs of cardio-vascular degeneration and of the gouty state, and that is potassium iodide. It checks the progress of degenerative changes, it stimulates glandular organs, and efficiently promotes elimination, and it appears also to prevent vaso-motor irritability—all these effects may depend on its eliminative properties. It is one of the most efficient anti-neuralgic agents in other forms of nerve pain. It may be given in 5 to 15-grain doses, three times a day.

In cases traceable to malarial intoxication, if arsenic fails to relieve, quinine should certainly be given; but in such cases evidence of arterio-sclerosis will usually be present, and will indicate the use of potassium iodide. It has recently been stated that cocaine, in doses of $\frac{1}{3}$ of a grain, thrice daily, has the power of entirely preventing attacks of angina.

Those who see in the causation of the anginal paroxysm the predominating influence of vasomotor spasm consider that the main indication for the relief of the paroxysm is to administer medicinal agents which are known to have the power of relaxing the arterioles, and so of lowering arterial tension, and, to that extent, to relieve the heart of a certain amount of the peripheral resistance it has to overcome. They therefore use nitrite of amyl, nitro-glycerine, or sodium nitrite.

Nitrite of amyl is best administered by inhalation. A capsule containing three or five minims should be broken in a handkerchief, and inhaled. In some cases, however, it entirely fails to relieve, although it may produce, in a most marked form, its characteristic effect of dilating the vessels. Nitro-glycerine is preferred by others, and it has been pushed until very large doses have been taken—as much as 35 drops of a one per cent. solution have been given and repeated at short intervals during an attack, and seven minims three times a day in the intervals. We should begin, however, with much smaller doses—one to two minims of the one per cent. solution. Whitla recommends smaller doses—$\frac{1}{1000}$ m. of nitro-glycerine—very frequently, so as to maintain the effect and avoid the headaches which often follow the larger doses. Sodium nitrite may also

be employed for the same purpose ; its effect is said to be more lasting than that of nitrite of amyl and nitro-glycerine. It is given in tablets of $2\frac{1}{2}$ grains ; one to four of these may be given for a dose. At the onset of an attack, in addition to the inhalation of nitrite of amyl, which, owing to the rapidity of its action, is the most suitable remedy to start with, we may give some warm diffusible stimulant, such as 30 minims of sulphuric ether, or a dram of nitrous ether, with a dram of sal volatile or a little brandy in an ounce or two of peppermint water. The feet and hands, if cold, may be placed in hot water. In severe and protracted attacks we may be obliged to have recourse to hypodermic injections of morphine. A sixth or a quarter of a grain may be injected for a dose. Morphine seems to be better tolerated in cases of cardiac pain with a weak heart than when it is given to relieve other neuralgias under the same circumstances. When it is given to relieve cardiac pain, there seems to be less risk of its causing cardiac depression. It is, however, a good plan to give some ether and ammonia mixture at the same time, to counteract any such possible depression. The etheral tinctures of valerian and of castor have been found useful. The inhalation of pyridine has been said to give immediate relief, but the unpleasant penetrating odour of this substance makes patients object greatly to its use. Bromide of ethyl has also been used in inhalation. I have elsewhere shown the value of counter-irritation in the form of flying blisters in those cases where a chronic aortitis may have involved contiguous branches of the cardiac plexus. A hot mustard poultice to the præcordial region may be useful at times : a hot application to the region of the heart in anginal cases is a very popular remedy in the Vienna School. The application of the continuous electric current along the course of the vagus in the neck, and down the arm, in cases where a distinctly painful *aura* is experienced in the hand, has been found useful in warding off attacks. Leeches applied over the sternal region and repeated small bleedings from the arm have also been found useful.—*The Practitioner*, *May*, 1893, *p.* 348.

17.—ON THE USE OF NITRITES IN CARDIAC DYSPNŒA.

By D. T. Leech, M.D., F.R.C.P., Senior Physician to the Manchester Royal Infirmary.

Next to the relief of angina the nitrites are of most service in the prevention of dyspnœa connected with other forms of cardiac and with pulmonary disease. The theories which have

been broached to account for cardiac dyspnœa are many in number, but hyper-distension of the pulmonary vessels is regarded in most cases as the immediate cause of the continued shortness of breath associated with cardiac dilatation and valvular lesions. The heart is at times unable to send the blood on its way through the system because, owing to the weakening of its walls or the narrowing of the vessels, there is a disproportion between the power of the heart and the obstacle it has to overcome ; from these causes or from a defective valve the pulmonary vessels may be kept constantly over-full. The dyspnœal paroxysms may depend immediately on many causes, but most frequently they are due to a sudden increase in the difficulty which the heart experiences in driving the blood onwards through the systemic system, either from a passing increased narrowness of the arterioles or from a temporary failure of cardiac power. Paroxysms of dyspnœa in cardiac disease may likewise occur from exacerbations of pulmonary hyperæmia and œdema. Unfortunately, it is not always possible to determine whether attacks of dyspnœa with which we have to deal are due to heart failure, vascular contraction or some other cause ; often, indeed, more causes than one are present, hence the difficulty of coming to any conclusions as to the cases in which tension reducers may be of service, but in certain forms of cardiac trouble they are usually of special value. In the dyspnœic attacks which so often accompany cardiac dilatation connected with alcohol, gout, &c., I have seen nitrites of ethyl and sodium and nitro-glycerine give much relief. By dilating the vessels for a time they enable the heart to do its work and thus relieve the congestion of the pulmonary vessels. The question arises, if the dyspnœic attacks are connected with cardiac failure can they do harm in virtue of their cardiac depressant influence? I believe that large doses might work evil, but in small quantities, such as from one to two drops of nitro-glycerine, from one to two drachms of the $2\frac{1}{2}$ per cent. solution of nitrite of ethyl, or two grains of sodium nitrite, the action is always in favour of the heart. These small quantities can powerfully dilate the vessels, but they do not, in an important measure, depress the heart. Experiments on animals, as I have pointed out, show that very small quantities increase rather than decrease the amount of work a heart can do. I have given the doses I have named in a very large number of cases, and I have never seen the slightest indication pointing to possible evils. The amount administered may be cautiously increased without any risk if the relief be insufficient or if the efficacy first noticed seems afterwards to fail. In the case of nitrites, increase of danger is not proportioned to increase of dose. When relief is not obtained by a small dose, and when

no physiological effects follow such as throbbing in the head or palpitation, I find that it is quite safe to repeat the dose in half an hour. It is desirable, when the larger doses are given or when the drug is given more frequently, that the patient should rest. Discomforts which have arisen after small doses of the nitrite, such as three grains of sodium nitrite, have for the most part occurred in those who have been pursuing their ordinary avocations. I am not deterred from giving nitrites in dyspnœa by irregularity or weakness of the pulse, for I find that in dyspnœa they do not tend to cause syncope or lead to heart failure. Dr. Sansom has published a case in which a patient with an extremely weak and irregular heart's action was in the habit of taking six to twelve nitro-glycerine tablets daily without medical advice. I have met with one or two similar instances in which persons with very dilated hearts have found such relief from nitro-glycerine tablets that they have continued to take them for months, and I have no doubt that many sufferers take them habitually without advice. I can easily conceive that grave mischief might arise, but so far as I have met with no record of it. Fortunately there seems to be a special tolerance of nitrites in such cases. When with cardiac dilatation moist sounds at the bases of the lungs give evidence of bronchitis or lung œdema the nitrites generally fail to relieve, but by no means always. Partial relief is, indeed, not uncommon, and a few doses of a nitrite are always worthy of trial. In the paroxysms of dyspnœa which occur in many valvular diseases of the heart the nitrites are sometimes of great service; but here, as in simple cardiac dilatation, they often fail when there are abundant moist sounds at the bases of the lungs. They will fail to remove dyspnœa too, as all other remedial agents will fail, in very advanced conditions of cardiac disease, yet even in the most unpromising cases they are at times of the greatest value in the relief of distress, so much so that patients will often beg for the repetition of the dose which has given them so much comfort. The nitrites are naturally most useful in mitral disease, since here paroxysmal dyspnœa is more frequent than in aortic troubles, but aortic incompetence is no bar to the use of nitrites in small quantities when the breathing is oppressed. In valvular disease, as in simple dilatation, weakness and irregularity of the heart's action need not be taken into account in giving small doses of the nitrites for dyspnœic attacks; such doses do no harm even if they do no good. In a few cases, as I have already said, I have known irregularities cease under their employment.

Against the utility of nitrites in cardiac dyspnœa it might be urged that as their vascular influence is but transitory so also will be the relief they give, and this is true; but here, as in the

case of other remedies, we find that relief is not limited to the period during which the medicine directly acts. When unduly contracted arteries are dilated they do not forthwith resume their contracted condition as soon as the effect of the nitrite on the vessel wall has passed away. Whether the dilatation of the pulmonary vessels by nitrites is one factor in the relief they give in cardiac dyspnœa we cannot say, but the very marked effect they can be shown experimentally to produce in dilating these vessels seems to render it likely that, besides increasing the calibre of the systemic vessels and easing the left heart, they at the same time, by widening the pulmonary vessels, relieve the strain on the right heart. Since paroxysmal cardiac dyspnœa has many causes, some of which are not influenced at all by vascular dilatation, it follows that sometimes no relief is obtained from nitrites, but as a routine remedy for this dyspnœa I believe there is nothing better. For the past two or three years nitrites have been resorted to habitually in my wards of the infirmary at Manchester in all forms of dyspnœa. Comparing their effects with those obtained from ether and ammonia in paroxysmal attacks of cardiac dyspnœa, I have no hesitation in saying that the nitrites are by far the most beneficial. I have used a solution of nitrite of ethyl in absolute alcohol, but nitro-glycerine or nitrite of sodium with alcohol might, perhaps, in some respects be better, since they are more stable. For the permanent short-breathedness of cardiac disease the nitrites are, I believe, less useful than for dyspnœic attacks. Occasionally a measure of relief may be given to the heart's work by them which is doubtless beneficial to this organ, but I do not think that it is possible to keep the tension permanently low, either by nitrites or by nitro-glycerine, for by persistent administration at short intervals their vascular dilating power lessens somewhat and with large continuous doses methæmoglobin might be produced. I have found that some patients with weak dilated hearts, who suffer from dyspnœa on slight exertion, experience great relief from a few small doses daily of nitro-glycerine, and I think I have seen some permanent advantage derived from this treatment. In some other special conditions connected with cardiac disease the nitrites have been found to be of service—as, for example, in aortic insufficiency with hypertrophy and severe headache. We often meet with patients just past the middle period of life who are stout and with some evidence of fatty cardiac change, who feel a sense of discomfort on any exertion and are therefore unable to take exercise, and who at times have somewhat severe attacks of dyspnœa from slight causes. In these cases I think the nitrites are not only useful in the attacks, but also in giving comfort when taken regularly. A tablet or two of nitro-glycerine, when taken twice daily, will

often remove long-standing discomforts due to the readiness with which dyspnœa is excited, and a permanent improvement at times ensues, because, with the aid of the nitro-glycerine, patients are able to take a certain amount of exercise. Even in advanced fatty changes I have no hesitation in giving small doses of the nitrites, both to relieve and prevent dyspnœa. I question whether the heart in this condition is weakened by them at all; of this I am quite sure—it is much relieved and aided in its work.—*Croonian Lectures. The Lancet, July* 15, 1893, *p.* 125.

18.—ON THE USE OF NITRITES IN ANGINA PECTORIS.

By D. J. Leech, M.D., F.R.C.P., Senior Physician to the Manchester Royal Infirmary.

Angina pectoris has been defined by Sir Richard Quain as an affection of the chest accompanied by severe pain, faintness and anxiety occurring in paroxysms connected with disorders of the pneumogastric and sympathetic nerves and their branches, and frequently associated with organic disease of the heart.

It is manifest that for the production of angina as thus defined a variety of pathological conditions may suffice. Alterations in the cardiac nerve and plexuses due to intrinsic structural changes or to their involvement in diseased conditions of adjacent organs may lead to periodic neuralgic attacks similar to those which we see in other parts of the body when nerves or plexuses are similarly affected. Neuralgic pains referred to the heart may be the outcome of reflected irritation originating elsewhere, as, for example, in the abdominal organs. Hysterical pains may be felt in the cardiac region as well as in other parts. All these causes may perhaps lead to paroxysmal pains apart, or almost so, from circulatory changes connected with alteration in tension; but clinical observations do, I think, indicate that a large proportion of anginal attacks are directly caused by a rise in tension, and there seem to me good grounds for believing that this rise is due to a temporarily decreased calibre of the systemic or pulmonary vessels and a consequent suddenly increased call on the propelling action of a heart the walls of which are more or less altered in structure. In some cases as Dr. Douglas Powell has so well pointed out, the call may be made upon a diseased heart (angina pectoris gravior); in others there is more or less cardiac reserve power and integrity (angina pectoris vaso-motoria); but in both forms the symptoms are due to the fact that the heart is unequal to the work it is called on to perform. With a view to removing the high tension ensuing from this contraction,

Dr. Brunton first made trial of amyl nitrite in angina pectoris and discovered its wonderful power of relieving the cramp-like pain which accompanies this ailment. Of late, however, doubts have been raised as to whether high tension is really the cause of pain, and it has been suggested that nitrites relieve, not because they lower tension, but because they act as analgesics and remove the pain which causes high tension. It seems to me that for this theory there is but little foundation; experiments, as I have said, give no indication that nitrites are direct analgesics; in poisonous doses, indeed, they depress the functions of all portions of the nervous system, but the afferent portion is the last which is affected. So powerful an analgesic as morphine not unfrequently fails to relieve the pain which a minute dose of amyl nitrite at once removes, and there is, I hold, no warrant for the assumption that nitrites or nitro-glycerine has a special analgesic influence on the cardiac plexus. I cannot see sufficient ground in what has so far been advanced for calling in question the opinion that increased tension is the cause of suffering in a large proportion of cases in which paroxysmal pain is referred to the heart; and that in the treatment of angina pectoris it is important in the first place to lower this tension as speedily and efficaciously as possible. In the reduction of tension by nitrites we have three objects in view: (1) to relieve pain as rapidly as possible; (2) to avert a fatal termination; and (3) to prevent the recurrence of pain. The second object is for the time attained when the pain is removed. The pain of angina varies greatly in duration; generally it is short in the earlier stages of the disease and abates quickly when the immediate cause, usually some movement, has ceased. Not unfrequently, especially towards the termination of a long-standing case, agonising pain is present for many minutes, sometimes for many hours; but, whether the duration of pain be short or long, those nitrites are manifestly, in the first instance, called for which act most quickly. What I have stated with regard to the time at which the influence of the various nitrites on the circulation is first distinctly perceptible points clearly to the drugs which may most advantageously be used during anginal pain. It has been shown that propyl, isobutyl and amyl nitrites reduce the tension in a few seconds, whilst sodium nitrite takes from two to five minutes to act and ethyl nitrite about the same time. Even nitro-glycerine, which affects the circulation in from forty seconds to two minutes, acts much less rapidly than do the fatty nitrites when they are inhaled.

Manifestly, then, to relieve urgent pain and its concomitant danger, the fatty nitrites should be inhaled. Hitherto an impure nitrite has been chiefly used for this purpose. The nitrite of amyl of the British Pharmacopœia is a mixture of many

nitrites and contains likewise amyl alcohol and oxidation products such as valeric aldehyde, valeric acid, and amyl valerate. The inhalation of amyl nitrite sometimes fails to relieve the pain of angina pectoris ; this failure may arise from several causes:—(1) The paroxysms may be due to neuralgia of local origin, or it may be reflected or hysterical, and circulatory changes may take but little part in its production ; in such conditions nitrite inhalations can do no harm, yet they may fail to relieve pain. (2) In some cases the nitrite does not remove pain because of the short duration of its action ; it does not break the spell of the vessel contraction ; there may be relief, but it is not complete, and when in a minute or two the effect of the drug passes off the wave of contraction returns, and with it the pain. (3) Some persons are curiously insusceptible to the influence of amyl nitrite. In such patients full inhalations may succeed when slight ones fail, though this is not very common. If a certain measure of success is not obtained with ordinary inhalation, it is not often that a more copious use of amyl nitrite completely removes anginal pain. (4) Lastly, in very advanced cases where the attacks of pain continue long, amyl nitrite may entirely fail to relieve the pain, though in an earlier stage it proved useful for this purpose.

If from any of these causes amyl nitrite does not remove pain one of the nitrites whose effects are more persistent should be tried. Of the official preparations, nitro-glycerine is by far the best. It reduces tension more quickly than sodium nitrite, and more quickly too, than, ethyl nitrite. Beginning with one drop of liquor trinitrini, the dose may be gradually increased until either the pain is relieved or unpleasant physiological effects, such as throbbing in the head or palpitation, show that no more can be borne. In pain of hysterical or reflected origin this physiological limit is often quickly reached ; but in other cases very large doses may be given before relief is obtained. Dr. Murrell, to whom we owe the introduction of nitro-glycerine as a remedy for angina pectoris, has given, as I have said, 110 minims eight times daily. Some are very insusceptible to nitrites, especially when passing through a dyspnœic attack, and it is worthy of note that the same individual may be more susceptible at one time than another.

A patient came into the infirmary with intense dyspnœa and cyanosis and some cardiac dilatation. The nitrites of amyl and ethyl seemed to have no effect in relieving the dyspnœa and the ordinary effect of the amyl compound he did not feel. Nothing was of service except free venesection, which at once relieved him. The next day even his pulse was somewhat refractory to nitrites, ordinary doses of sodium and amyl nitrites only affecting his circulation slightly. The pulse tracing, taken a month

later, showed that he was then fairly susceptible to two grains of sodium nitrite; then he commenced to take the nitrites regularly and in another month I found the tension of his pulse to be but little influenced by this dose, though by stronger doses it was readily brought down. As I have before said, people with high tension are less affected by nitrites than those with low tension.

I have several times had occasion to gradually raise the dose of liquor trinitrini to twenty minims. It not unfrequently happens that larger doses are required as the case progresses, and I believe it is far safer to employ somewhat large doses of nitro-glycerine than to resort to morphia injections, which in the latter stage of angina pectoris generally fail to give relief and, I suspect, at times hasten the fatal termination. Let me say here that I look on the injections of morphine in severe paroxysmal cardiac pain as being by no means devoid of danger. It is quite true that they often give relief in anginal attacks and are not usually followed by dangerous symptoms, but I have myself twice seen death occur shortly after subcutaneous injection of morphine in a prolonged anginal attack, and in the experience of others I find that a fatal termination is so frequently a sequence of an injection of morphine that it savours strongly of cause and effect. From the use of nitrites I can find no evidence that fatal results appear to follow, notwithstanding the large doses in which they have been given and the critical condition of many of the patients who have taken them. On the other hand, I have several times seen reason for believing that life has been shortened owing to the want of nitrites or to their use in too niggardly a fashion, and on more than one occasion it has seemed to me as if the immediate cause of death has been an unreplenished nitrite bottle.

Every person who suffers from angina pectoris and who has derived relief from nitrites should have immediately at hand amyl nitrite or the tabellæ or liquor trinitrini. To prevent the recurrence of anginal attacks amyl nitrite is, of course, of no service, but nitro-glycerine is as useful in preventing attacks as in relieving them. A sufficient dose should be given a few minutes before an exertion is made which is likely to cause an attack of pain. The amount which is sufficient can only be determined by the effect on the patient; sometimes one drop will suffice to ward off attacks for two or three hours, but oftener larger doses are required. One patient, for example, finds that not less than twenty-five drops are necessary in order to enable him to perform light work for some hours, and for six months he has, by the aid of this dose once or twice daily, been enabled to live and to earn a livelihood in fair comfort. Danger, I believe, arises, not from the size of the dose

or from its frequent repetition, but from too great fear of the drug.

In those in whom the anginal pains are connected with serious cardiac degeneration the time at length arrives when severe cardiac pains, which may be long-continued, comes on without apparent cause and the end is then usually near at hand. Here the frequent use of large doses of liquor trinitrini will not suffice either to prevent or to ward off all pain, but it is the most effective means we possess, and if it does not prevent suffering it at least mitigates it without adding to the danger. Nitro-glycerine is so quickly absorbed in the stomach that subcutaneous injection is, as a rule, not necessary ; but in cases of urgency, where there is fear that the absorptive power of the stomach is in abeyance, it may be resorted to. At times nitro-glycerine is not well borne, owing to the headache which it causes ; sodium or ethyl nitrite may then be tried, especially for the purpose of preventing paroxysms. The sodium compound may be used, beginning with two-grain doses, but I do not think it usually agrees so well with patients as nitro-glycerine when large doses are required. A $2\frac{1}{2}$ per cent. solution of ethyl nitrite in absolute alcohol I have often used, giving doses of one or two teaspoonfuls. The solution should be mixed with water immediately before being taken, otherwise the nitrite rapidly escapes. Of late I have employed the ethyl nitrate, which has a distinctly longer-lasting influence in reducing tension than the nitrite, and in some ten or twelve cases in which I have used it the testimony in favour of its prolonged beneficial action has been satisfactory. A medical man who has been under my care for angina pectoris has at my request compared on himself the effects of various nitrites and he places the nitrate of ethyl distinctly above the others in the length of time for which it wards off the attacks. In another case, that of a woman aged twenty-eight, who had suffered from anginal attacks for three or four months, and who found relief during the attacks both from nitro-glycerine and the inhalation of amyl nitrite, I found that nitrate of ethyl gave more continuous relief than nitro-glycerine. For two or three days she took three-minim doses of the ethyl nitrate at intervals of three or four hours ; in this quantity the attacks, though not prevented, were lessened in frequency. As the heart's action seemed to be quickened she returned to the occasional use of the nitro-glycerine, but soon afterwards the attacks became more frequent and less amenable to relief by this drug. One morning, in the absence of one of my colleagues, I saw her and found her with severe cardiac pain, which had lasted for an hour, and which nitrite of amyl and nitro-glycerine in small doses had failed to relieve. A drachm of a 10 per cent. solution of nitrate of ethyl, the last I happened to have at the time, was then given

to her. In ten minutes the tension was lowered, as shown by the tracing, and the pain had entirely disappeared. A few hours later it recurred. Nitro-glycerine gave slight relief, but only for a very short time; nitrite of amyl failed entirely to remove the pain. A subcutaneous injection of morphine guarded by atropine was now cautiously given, only two doses of the eighth of a grain being injected with an interval of half an hour. Hardly the slightest relief followed, the pain continuing for three hours, when she became cyanotic and died somewhat suddenly. At the post-mortem examination the aortic valves were found to be insufficient, one of the coronary arteries was small and the other was almost obliterated. My experience of the use of nitrate of ethyl in angina pectoris and other ailments is not sufficiently large to enable me to form a definite opinion as to its value as compared with nitrites, but the long period during which it lowers tension in healthy subjects and its very definite effects in the few cases of angina in which I have tried it leads me to think it may prove to be of value.

The nitrates of propyl, isobutyl, and isoamyl are as effective in lowering tension as nitrate of ethyl, but the tendency to cause headache, which is, I think, even more marked with the nitrate than the nitrite of ethyl, is a still more prominent feature in the action of the propyl, isobutyl and isoamyl compounds, and I have not used them medicinally. Although I regard the nitrites and the organic nitrates as of the greatest value in relieving and preventing anginal attacks and in helping to ward off the fatal result in which any attack might terminate, I cannot rank them highly as curative agents. Doubtless, when attacks of angina are warded off and rendered less severe by the use of tension depressors, recovery does at times take place, as Dr. Murrell has well shown in some of the cases which he has so graphically described in his book on "Nitro-glycerine." The relief from pain and suffering may tend to prolong life and when regularly given the heart's work may be so decreased that its nutrition may improve. Perhaps, too, the vessel walls gain some advantage from the fact that under the influence of the nitrites their continued contest with the blood current is somewhat lessened; but I am by no means satisfied that the recoveries from angina pectoris which have been reported after the administration of nitrites and nitro-glycerine are really due to these drugs. Their employment is only one element, though an important one in the treatment of angina. It should be accompanied by the use of those agents calculated permanently to improve the condition of the vascular system, amongst which I believe iodide of potassium and arsenic to hold a foremost place.—*The Croonian Lectures. The Lancet, July* 15, 1893, *p.* 123.

19.—ON THE DIAGNOSIS OF TRICUSPID STENOSIS.

By E. H. Colbeck, M.D., M.R.C.P., Assistant Physician to the City of London Hospital.

[Dr. Colbeck gives the narratives of seven cases (with autopsy) of tricuspid stenosis, and summarises the symptoms and physical signs as follows:]

Dropsy, present in a variable degree in every case, and generally extreme cyanosis or lividity of the face and extremities. General venous distension. Dyspnœa marked in all cases, and often amounting to orthopnœa. Palpitation of the heart, associated with infra-mammary or epigastric pain.

The physical signs present were: Epigastric pulsation, and a forcible right heart impulse. Extension of the area of cardiac dulness to the right of the sternum, best marked in the second, third, fourth, and fifth intercostal spaces. A presystolic or diastolic murmur heard at the apex, with or without a systolic murmur. A presystolic or diastolic murmur heard over the tricuspid area (*i.e.*, the fourth and fifth left spaces close to the sternum, and the area round the ensiform cartilage) with usually a faint systolic murmur. The sounds at the base of the heart generally weak. Fulness of the jugular veins, not accompanied as a rule by pulsation. Signs of congestion and œdema of the lungs. Enlargement of the liver, usually considerable, with no pulsation of the organ. Evidence of congestion of the abdominal organs.

A detailed consideration of these symptoms and physical signs will, I think, allow us to separate those produced by the tricuspid stenosis from those which were due to the concomitant lesions.

Mitral stenosis uncomplicated by mitral regurgitation or tricuspid stenosis does not usually produce dropsy. Indeed, so rarely is this the case that for many years Sir William Broadbent has taught that if serious dropsy occurs in the course of mitral stenosis, the cause will be found to be stenosis of the tricuspid orifice. The post-mortem room has repeatedly verified the accuracy of this teaching. The absence of dropsy in pure mitral stenosis has not yet been satisfactorily explained. In the opinion of the writer it will probably be found to depend on some sort of pulmonary and systemic accommodation. In support of this theory it may be pointed out that, owing to the slow and enormous dilatation of the pulmonary vessels that occurs in cases of mitral stenosis, the pulmonary area may be supposed to gradually become a reservoir for blood. In consequence of this, less blood is supplied to the systemic circulation, which (as is shown by the state of virtual tension which exists in

the arterial system in cases of mitral stenosis) gradually accommodates itself to the altered conditions. As the result of this it is probable that the pressure of blood in the vessels of the systemic system never rises sufficiently high to cause dropsy so long as the right heart holds out. This view is further supported by the fact that in some cases of mitral stenosis in which the right heart gives out, the resulting leakage through the pulmonary and tricuspid orifices, aided by the force of gravity, may give rise to sufficient pressure in the systemic vessels to cause dropsy in the dependent parts.

The presence of dropsy, which may often amount to complete waterlogging of the patient, when tricuspid stenosis is added to the mitral lesion, is due to the fact that, owing to the tricuspid condition, the flow of blood in the systemic venous system becomes obstructed at its outlet, and consequently the vessels behind the obstruction become distended. This distension of the systemic veins produces a sufficient intravenous pressure to cause transudation of the fluid elements of the blood into the tissues. The conditions present in the case of pure mitral stenosis are now modified, owing to the stenosis of the tricuspid orifice, which diminishes the flow of blood into the lungs. As a result of this the pulmonary engorgement becomes at least partially relieved, and ultimately the systemic venous system becomes distended at the expense of the pulmonic.

The next point on which I would lay stress in the diagnosis of tricuspid stenosis is the increase in the area of cardiac dulness to the right of the sternum. This physical sign is nearly always present in those cases in which tricuspid stenosis is found, and depends mainly on the dilatation and hypertrophy of the right auricle. It also depends to some extent on the hypertrophy and dilatation of the right ventricle, which is almost always associated with the similar auricular condition. It is shown clinically by the presence of excessive epigastric pulsation, and a forcible right heart impulse, until failure of the right heart supervenes. The dulness usually extends from an inch to an inch and a half outside the right border of the sternum and is best appreciated in the third, fourth, and fifth right spaces. Increase of the area of cardiac dulness to the left of the sternum is not of much diagnostic significance in cases of tricuspid stenosis, as it is generally the result of dilatation of the left ventricle, consequent upon regurgitation through the mitral orifice.

The auscultatory signs are often most conclusive. In five out of the seven cases above quoted, a presystolic or diastolic murmur was heard more or less clearly over the tricuspid area. It may be mentioned that by the term "tricuspid area" in this paper, is meant the fourth and fifth left intercostal spaces close to the sternum, and the area round the ensiform cartilage. In

two cases in which the murmur referred to was not heard, the lesion was not suspected during life, and consequently the murmur was not specially listened for. In the above cases also the tricuspid presystolic murmur was present in a much larger proportion of cases than has occurred in the experience of other observers. Fenwick and Leudet, from an analysis of 48 and 114 cases respectively, state that a presystolic murmur heard over the tricuspid area is uncommon, though they admit its occasional occurrence. It may, however, be pointed out that it is probable that in a large number of these cases, as in the two here quoted, tricuspid stenosis was not suspected during life, and consequently the murmur was not carefully sought for. It will be noticed that in the cases quoted, the tricuspid presystolic murmur was exceedingly inconstant, and it is obvious that unless repeated and systematic auscultation of the tricuspid area be carried out, the murmur is exceedingly likely to be overlooked. It is, I think, probable, that careful and repeated auscultation of the tricuspid area in cases where tricuspid stenosis may be suspected, will demonstrate the more frequent presence of this murmur than is generally supposed to be the case. The presence of a tricuspid presystolic murmur with the other symptoms produced by tricuspid stenosis makes the diagnosis of the condition certain.

In those cases in which this murmur has been heard without actual obstruction of the orifice the cause has been found to be a shred of fibrin hanging from one of the tricuspid valves, or a clot of blood in the right auricle, and the absence of the symptoms characteristic of tricuspid stenosis would render the differential diagnosis easy.

There is usually present also a systolic murmur over the tricuspid area, due to some regurgitation of blood through the tricuspid orifice during the ventricular systole, and it is to this murmur and its effect on the right heart first sound that I would now especially draw attention. A systolic murmur heard over the tricuspid area and due to regurgitation of blood through the tricuspid orifice tends to obscure more or less the right heart first sound. In the cases of tricuspid stenosis, in which a systolic murmur is also heard over the tricuspid area, the murmur, as I believe, *follows* the right heart first sound and does not obscure it, the sound being invariably short, sharp, and loud. This, moreover, is exactly what one would expect on the analogy of the left heart first sound in cases of mitral stenosis accompanied by regurgitation. This relation of the systolic murmur to the right heart first sound and the character of the latter, so far as I have been able to discover, have not been noticed by any writers on tricuspid stenosis. I would venture to lay very great emphasis on the value of this sign as a diagnostic point.

Fulness of the jugular veins, especially marked in those on the right side, is frequently present, and usually there is no pulsation in them, nor do they when emptied fill from below as in ordinary cases of tricuspid regurgitation. However, the absence of pulsation is by no means absolute, since in those cases in which the stenosis is considerable the auricular systole drives some of the blood back in the veins, and thus gives rise to slight venous pulsation. It is probable also that regurgitation through the tricuspid orifice accompanying the ventricular systole might give rise to a faint venous pulsation. Thrombosis may occur in the jugular and subclavian veins, giving rise to symptoms usually resulting from thrombosis in these situations. Emboli originating in these veins and being carried to the lungs would partly account for the hæmoptysis which may occur.

Purpuric spots may appear in the skin of the extremities and dependent parts, owing to the rupture of small vessels, the result of increased pressure on their walls. The fingers are sometimes clubbed. Cyanosis or lividity of the face, arms, and legs may be a marked symptom. It is always well seen in cases of congenital origin. As the dropsy increases the distension of the venous system becomes marked by the œdema of the tissues. The liver is generally enlarged, often greatly so, but may in time become small, owing to the contraction of the fibrous tissue, the result of secondary cirrhosis. It does not pulsate.—*Medical Chronicle, August*, 1893, *p.* 303.

20.—ON THE TREATMENT OF PERICARDITIS.

By D. B. Lees, M.D., F.R.C.P., Physician to St. Mary's Hospital.

Fifty years ago there was neither doubt nor hesitation in the treatment of pericarditis, and the treatment adopted was certainly not lacking in vigour. In his "Lectures on Diseases of the Heart," published in 1845, Dr. Latham describes his treatment of eighteen cases of pericarditis. He says: "Not a moment was lost in the application of remedies. They were venesection, and cupping, and leeches, and blisters, and opium, and, from first to last, mercury." And he especially insists that it is necessary to push mercury to salivation. How many of these formidable measures are in use to-day? Venesection, cupping and mercury have been absolutely banished from the treatment of pericarditis. Three or four leeches, or a single small blister, now represent the maximum therapeutic attack on the disease from without, whilst a little morphia alone remains as a representative of the active medication of former

days. That is to say, we have given up the idea of curing pericarditis and limit our efforts to keeping the patient at perfect rest, nursing him assiduously and trying to ease his pain by morphine and by the soothing influence of warmth to the præcordium. We have indeed discovered that salicylates are curative of the rheumatic process on which the pericarditis usually depends, but it is taught by some physicians that this drug must be given up on the occurrence of pericarditis lest it should cause cardiac depression. Thus it may be said that the treatment of this formidable complication of rheumatism is rather less than nothing, for the patient is actually deprived of the sole remedy which seems to have a specific influence over his rheumatism. Have we, then, no means of combating pericarditis as a local inflammation? I maintain that we have. It is the local persistent application of cold. This should be first tested by watching the therapeutic effect of persistent cold on a local inflammation in another part of the body, on the neuritis of the sciatic nerve, otherwise called sciatica. If in a case of this disease which is of not more than two or three weeks' duration two icebags are placed over the course of the inflamed nerve and are kept applied for two or three days, there is usually rapid and marked improvement, the pain and tenderness quickly diminishing. Encouraged by the result of this experiment, the effect of the application of an icebag over the tender region in the right groin in a mild case of perityphlitis should be tried next. I exclude the severe cases due to perforation of the appendix vermiformis by a concretion, for these are unsuitable for palliative treatment; they are only too apt to kill rapidly by general peritonitis and require early operation. I have had six cases of this kind; five of them were saved by prompt interference, my first was not operated on and died in a few days. But if in a case of perityphlitis in which there is a tense tender swelling in the appendix region, but in which the diaphragm still descends in deep inspiration and where there is no evidence of general peritonitis, an icebag is applied over the swollen appendix the greatness of the relief which results within twenty-four hours is surprising. I have seen this now many times. A recent observation in this direction impressed me greatly. It was the case of a young man in whom severe symptoms of perityphlitis had already been present for ten days when I first saw him. There was marked distension of the abdomen, which was extremely tender over nearly its whole extent; the diaphragm was passive and the expression of the face was such that I thought he had not many hours to live. It was necessary, however, to postpone operation for a short time, to obtain the consent of his relatives, and meanwhile I had an icebag applied to the right iliac fossa. When I visited

him again seven hours later with my colleague Mr. Silcock, with a view to immediate operation, I was astonished at the improvement which had taken place. He had lost all pain, the abdomen was much less tender and the expression of his face was altogether different. The effect was so striking that for a short time I hesitated to sanction an immediate operation; but, as Mr. Silcock and I agreed that it was practically certain that there was pus in the peritoneum, we decided to operate at once and an incision let out a considerable quantity of pus from the peritoneal cavity. Very great relief followed, and the subsequent progress has been satisfactory. Here was a case of perityphlitis of the worst kind, in imminent danger of death, and yet the local application of ice was able to produce the most marked alleviation of the symptoms.

These two illustrations are enough to demonstrate the possibility of actively repressing visceral inflammations by the local use of ice. I say nothing of a similar result in pneumonia, though I am certain of the fact, because here the local result is not so obvious: it requires careful daily watching of the physical signs. It is therefore probable that the application of ice will tend to check inflammation in the pericardium also; but a further question now arises. Is ice a safe application to the region of the heart? The heart inflamed with pericarditis is already much depressed; is there not a risk of depressing it still further by the use of ice, perhaps of bringing it altogether to a standstill? If the heart of a recently killed frog, which is still pulsating normally, be chilled by ice, it soon ceases to beat; if then the ice be removed and warmth be substituted, pulsation returns; this alternation can be repeated two or three times. In this experiment it is clear that the cold acts as a powerful cardiac depressant; but it does not necessarily follow that the application of ice over an inflamed pericardium will add to the cardiac depression. If it succeeds in checking the local inflammation it may even lessen the depression and actually become a tonic to the heart. Which of these two results will follow can only be determined by cautious employment of the icebag and careful observation of the result. The notes of my seven cases treated in this manner, which have already been published (*Bri. Med. Jour.*, Feb. 18th, 1893), are, I think, sufficient evidence that the icebag, when used with reasonable caution, is a safe application in pericarditis, that it is usually liked by the patient, that it tends to check the violence of the local inflammation and to hinder effusion, and that it may even help to cause absorption of effusion which is already present. It acts "cito, tuto et jucunde." Since the publication of these cases I have continued to use the icebag in the treatment of pericarditis and with very satisfactory results. In the subacute

carditis of rheumatic children, often attended with some friction sound and signs of cardiac dilatation, but with little pyrexia and few symptoms, each attack, however, leaving the heart more damaged than before, I find that ice is of doubtful benefit and is apt to depress; but the acuter cases, even in children, derive great benefit from its use.

The question of the continuance or discontinuance of salicylates during an attack of pericarditis is of great interest. Some physicians of large clinical experience have advised the omission of these drugs when pericarditis occurs, believing that they cause increased cardiac depression. Is this a fact or not? I have been constantly on the look-out for evidence of cardiac depression produced by salicylates and have never been able to satisfy myself of its occurrence. On two occasions I have noticed slight irregularity of the pulse apparently produced by salicylates, but I have never observed any marked enfeeblement apparently caused by them. It is hardly likely that the cardiac depression produced by the pericarditis itself can by skilled observers have been credited to the salicylates taken, and I am more inclined to think that the effect may have been brought about by some impurity of these drugs in days when an enormous demand for them suddenly arose and the methods of manufacture were not so perfect as at present. In a condition essentially rheumatic it seems a pity to give up the use of salicylates unless there is a clear evidence of their hurtfulness. I have been in the habit of continuing their employment in my cases of pericarditis treated with ice and have been well satisfied with the result.

I may add a word or two about other measures. A little morphine subcutaneously injected is often of much service, and the application of a few leeches to the præcordium at the commencement of the pericarditis decidedly gives relief. I have only once had recourse to venesection; it was in the case of a young man with very severe pericarditis, in whom there was extreme cardiac dilatation. It was employed with a view of giving some relief to the right side of the heart and it seemed to be quite successful, the patient recovering from what was certainly a very critical condition. An icebag also was kept over his heart for several days and gave him so much comfort that when it was removed he requested that it might be reapplied. On more than one occasion during his gradual improvement he experienced pain over the cardiac region, and at his own request the ice was again employed; on each occasion it gave relief. In many other cases in which the icebag has been used, in pericarditis, in pleurisy, in pneumonia, in perityphlitis, and in sciatica, I have known patients to ask for its reapplication.—*The Lancet, July* 22, 1893, *p.* 189.

DISEASES OF THE ORGANS OF RESPIRATION.

21.—THE TREATMENT OF ACUTE PNEUMONIA.

By F. C. Shattuck, M.D., Boston.

No method of aborting pneumonia which has yet been proposed has made good its claims. Pneumonia, like typhoid fever, may abort spontaneously; but we cannot make it do so. Still, it seems to me that the method of Pétresco, of Bucharest, is worthy of trial. Since 1883 he has treated 755 cases of pneumonia with very large doses of digitalis from the time they first came under observation. He gives for two or three days a strong infusion, and claims to be able to cut early cases short, and to influence very favourably more advanced cases. His mortality now is only 1·22 per cent. He gives from one to two drachms of the leaves daily, the equivalent of one to two ounces of our tincture. In like manner we have had no distinctly curative treatment, though we are encouraged to hope that the injection of immune blood serum may prove to be such after further trial. In short, our efforts are at present confined to promoting the comfort of the patient, and conserving his forces in every way to enable him to outlive the self-limited disease. This in itself may be much.

For the better application of this general principle it will be more convenient to divide the disease into stages, remembering always that these divisions are arbitrary, and that nature does not seem to feel herself bound strictly to abide by them. Patients very rarely succumb to the stage of invasion or preliminary congestion of the lung with active implication of the pleura. The danger here is not of dying; it is rather of loss of strength, which may be sorely needed later. The indication, therefore, in the ordinary case is to relieve the pain, to put the patient to bed and freely open the bowels, just as the mariner prepares his ship for an impending hurricane. The severity of the pain, and any known or ascertainable peculiarity of the patient, will decide the character and amount of the means for its relief. In the early days, at least, there can be no question of the safety of morphine, which should be used freely and frequently, hypodermically. Restlessness and an excited nervous system call for morphia nearly as loudly as does pain. Dyspnœa in the average case is at this stage due far more to the pleuritic pain than to the state of the lung. But now and then we see a case in which so much lung tissue is so rapidly invaded that the heart finds it difficult to adjust itself to the changed condition, and greatly oppressed breathing results. In

such a case nothing gives such prompt relief as venesection, the freedom of which is to be proportioned to the age and vigour of the patient and its effect on the symptoms. If internal antipyretics are to be used at all in pneumonia, it is only during the first stage that they are admissible. I am no friend of them myself, and never use them in this disease. Even the best of them is somewhat depressing to the heart.

During the prevalence of the old doctrine of the nature of pneumonia and of inflammation, treatment was naturally addressed to the diseased organ, and antiphlogistics were used externally and internally. We now recognise the fact — or believe it to be a fact—that the cause of death in the second stage is rarely asphyxia as a result of the amount of lung involved. The loss of function of a portion of the lung plays in most cases a *rôle* which is quite subordinate to that of cardiac exhaustion, dependent probably on the influence of toxines on the innervation of the heart rather than on changes in the myocardium. That it is mainly a toxæmia which weakens the heart, and not simply the mechanically increased resistance in the right chambers, seems to be proved by the great fall in the pulse, as well as the breathing, coincident with crisis, although the physical signs over the affected lung area may show no appreciable change.

It is, then, the maintenance of nerve force which we must try to secure. This means the avoidance of every unnecessary fatigue and the administration of the largest amount of the most nutritious liquid food which can be digested, with free ventilation of the apartment. It seems to me that the poultice and the envelopment of the chest in cotton or wool are relics of the old pathology. The poultice is the worse, as its frequent change involves notable fatigue and its weight is not insignificant. I have no experience with the application of ice, which seems to be gaining favour in this country after long use in Germany. With regard to food and feeding, I do not propose to go into any detail. But I do want to enter a plea for greater freedom of ventilation than is generally allowed. Here, again, the old pathology seems to me still to influence the medical as well as the lay mind. I am convinced that courage in facing popular prejudice against cold air, and less reverence for the seventieth degree of the thermometer would subserve the interests of our patients and diminish the bills for oxygen. If I should be so unfortunate as to contract pneumonia, I trust that my doctor will put me in a sunny room and give me the benefit of a combination of open fire and open window. It is not pleasant to be accused, justly or unjustly, of killing our patients, and I must plead guilty, I fear, to a lack of the full courage of my convictions on this point. In the case of a very rich man whom

I saw repeatedly in consultation last winter, and who wished no expense to be spared, I soon found that it was useless to try to get a window open. Nor did I succeed in getting even an open fire. But cylinder after cylinder of oxygen was breathed with avidity.

The use of morphia in the first stage has been already touched upon. Experience is leading me to think that it should be used more freely in the second stage than is customary. Here it is not called for by pain so much as by restlessness, cough, and sleeplessness. In any given case we must try to estimate the proportion of danger from respiratory failure. The smaller this danger the more freely can we use morphia, which will do more good in resting the nervous system than harm in other ways; and even in cases where the danger of respiratory failure cannot be disregarded, but morphia is indicated on other grounds, I believe that the inhalation of oxygen enables us to give morphia when we might otherwise feel compelled to withhold it. With oxygen, of late years, I have had considerable experience. I have seen it given freely, and without regard to expense. But I can recall only one case in which I feel reasonably convinced that it saved life. Even here we had to deal with a patient whose age should have ensured his recovery according to the books. In many cases I have seen it give marked relief. Our experience with this gas is now sufficient to enable us to estimate its value better, and to use it more intelligently than a few years ago. I suppose to-day clinicians are agreed that oxygen may be useful when a sufficient amount of air to arterialise the blood is prevented from reaching the alveoli, a condition which is present in some cases of pneumonia as the result of excessive secretion in the bronchial tubes in combination with the lung consolidation. Cyanosis is, therefore, the best single indication for oxygen. In such cases it should be used early, and as freely as the purse of the patient will allow. Unfortunately it is still a very expensive remedy. But it is my feeling that its usefulness is wider than would appear from the above. I think I have seen refreshment, quieter respiration, a fuller pulse, and diminished restlessness, perhaps sleep, follow oxygen, even where cyanosis was absent or slight. The other chief means of stimulating the flagging heart, as reflected in the pulse and the character of the sounds, are alcohol, strychnia, cocaine, digitalis, and other heart tonics. I shall not delay to speak further of alcohol, as I think we are all pretty well agreed as to its usefulness and the indications for its employment. Strychnia has grown in favour of late years, and I think justly. It is best given hypodermically, and, in severe cases, to the limit of toleration—one-twentieth to one-fortieth of a grain every three or four hours. H. C. Woods speaks highly of cocaine as an adjuvant to strychnia.

All writers advise, and all practitioners use, digitalis, or one of its congeners, if there are any indications of a failing heart. I have so used it constantly, but must confess that I do not feel perfectly clear as to its usefulness as it is ordinarily given. Perhaps we do not use it in large enough doses. I am sure that we should use it hypodermically more than we do. I have this year seen prompt and distinct effect in several cases follow hypodermics of 30 minims of the tincture. Pétresco's results are confirmatory of the idea that our doses of digitalis are often insufficient.

With the cold bath and cold wet pack as remedies against high fever, delirium, and other nervous symptoms, I have but slight personal acquaintance. A period of the disease which we all recognise as one of much danger in some cases is that immediately following the crisis. Exhaustion or collapse at this time calls for rapid stimulation; alcohol and ammonia internally, heat to the surface, brandy, and ether under the skin.

In cases terminating by lysis, and in delayed resolution, a supporting treatment is to be carried out according to the indications presented by the case in hand. The frequency of empyema as a sequel to pneumonia is never to be forgotten, if for no other than a therapeutic reason.

For therapeutic purposes cases of pneumonia may be divided into three classes. First in frequency are those cases which will recover under any treatment or no treatment, unless they are grossly mismanaged; second, those which will die in spite of any and all treatment known at present; third, those in which judicious treatment may turn the scale.

Our object is constantly to strive to enlarge the third class at the expense of the second. Thus far our efforts have been unsuccessful enough it must be admitted; but, however sceptical we may be, we should not be hopeless, or refuse to listen to those who bring forward new methods, with an underlying basis of reason and fact. — *Boston Medical and Surgical Journal, August* 10, 1893, *p.* 139.

22.—ICE IN THE TREATMENT OF ACUTE PNEUMONIA.

By Thomas J. Mays, M.D., Professor of Diseases of the Chest in the Philadelphia Polyclinic.

Whatever its nature may be, it is quite certain that no other disease has elicited a greater number of conflicting opinions concerning its treatment than has croupous pneumonia. Forty years ago bleeding and blistering were regarded as its specifics;

but these are now, and for the last twenty years have been, scarcely thought of in this connection. In the meantime hot poultices, aconite, veratrum viride, digitalis, quinine, &c., have taken their places, yet it is not too much to say that they have all led to disappointment and come to grief in the retort of clinical experience, and that finally the profession has gravitated to the conviction that the disease is self limited in duration, and that hence all efforts to control its course are fruitless, if not actually harmful. To be thus compelled to stand before a disease and acknowledge one's helplessness and impotency is, to say the least, an unenviable position, but I must confess that until I became familiar with the value of local cold applications in this disease I was in hearty accord with this idea. Since then I may say that I am able to approach a case of pneumonia with a greater degree of assurance—not with the feeling, however, that we possess a specific, but with the confidence that here is an agent with which we are able to impress and circumvent the severity of the pneumonic process. I believe that cold properly applied will affect the death-rate of pneumonia as profoundly as it has affected that of typhoid fever, and, although I do not expect a rapid introduction of this measure, on account of a deep-rooted prejudice which exists against the use of cold in almost all internal diseases, I trust that the evidence which is herewith submitted will serve to commend it to the serious attention of the profession. Under the titles, "Can Croupous Pneumonia be Abated?" and "Ice in the Treatment of Croupous Pneumonia," I contributed two papers to the *Medical News* of Sept. 24th, 1892, and Jan. 21st, 1893, respectively, in which are related three cases of pneumonia which were treated principally with applications of ice to the chest; and since the appearance of the first paper I instituted a collective investigation on a small scale by sending a number of circulars to various members of the profession, inviting a trial of the ice treatment.

The histories of the fifty cases which have been brought under my notice open up many points of interest in the discussion of the influence of ice in the treatment of acute pneumonia, and as pertinent to this subject I will append the following comments:

The resolving power of ice on the exudation.—This is a marked feature in its therapeutic action and must be regarded as one of the strongest factors in its curative influence. This can at least be partly explained on the following basis: The most apparent lesion in croupous pneumonia is an enormous distension of the pulmonary capillaries, partial or complete stasis of the blood in these vessels, and exudation of the fluid constituents of the blood, and diapedesis of white and red blood-cells into the alveoli of the lung. It is well known that cold has the power fo contracting the blood-vessels, and from this action one can

understand why it should exert a beneficial action on pneumonia by giving tone to the capillaries, by restoring the normal blood flow and thus checking the leakage. But there is often reason for believing that it also dissolves the exudation in the pulmonary alveoli. For example, there may be a pneumonic area in which there is absence of respiratory murmur, the presence of a flat percussion note and bronchial breathing indicating beyond doubt that the process has passed beyond the state of engorgement and into that in which the exudation has filled the alveoli, yet the application of ice will, in a remarkably short time develop a new group of physical signs, such as crepitation, reappearance of the respiratory murmur, diminution of flatness &c., indicating that a break-down has occurred in the exudation. This has not only been observed by myself, but is dwelt on by Dr. Lees, who says : "In many cases I noticed a striking arrest in the development of the physical signs," and that the ice-bag "distinctly tends to repress the inflammatory process in the lung."

Influence on symptoms.—Not less decided is the influence of the ice on some of the most prominent symptoms of pneumonia. The pain, difficult respiration, cough and expectoration are remarkably relieved, and the temperature is frequently depressed two and three degrees in the course of half a day. The benefit which is exerted on these symptoms products a very agreeable effect, and often makes the ice acceptable to those who at first protest against its use. This I have noticed in most of my cases, and it has also been witnessed by others, as will be seen in the histories of the cases which have been reported to me.

Is the ice injurious?—My own rather limited experience with the ice treatment does not show that it is accompanied or followed by any evil consequences, nor have any of those who reported cases to me observed any such results, although some of them kept the ice in position for two weeks. Dr. Lees says : "I have never seen any harm follow from the employment of the ice-bag in pneumonia."

Ages of Patients.—It is important to note in this collection that the ages of the patients to whom the ice was applied varied from infancy to old age—the youngest being six months and a half old and the three oldest were sixty, sixty-five and seventy-four years respectively.

The results.—It may be said, without claiming too much, that the results which have been obtained from the ice treatment of pneumonia are good. Out of the fifty cases which I collected but two were fatal, making a death-rate of 4 per cent. In estimating this mortality rate it must be remembered that at least one of the cases that died was an exceedingly unpromising one being a sufferer from chronic lead poisoning and also very

intemperate ; whilst the pneumonia which caused the death of the other one was in all probability an acute exacerbation of an old attack. In Dr. Lee's series of eighteen cases no deaths occurred, nor did any occur in the eleven cases reported by Dr. Jackson. Moreover, *The Lancet*, Aug. 10th, 1892, p. 279. refers to an article by Dr. Fieandt, in which there is an account of 106 cases of pneumonia treated with ice applications by that gentleman, and, notwithstanding that amongst these there were ten cases of double pneumonia and that the epidemic of the disease was rather severe, he only had three deaths, or a death-rate of 2·82 per cent. Adding these cases to those reported in my collection; there is a total of 156 cases of pneumonia treated with cold applications to the chest, with five deaths, or a death-rate of 3·20 per cent. Whilst the number of cases reported here is not very large, it is nevertheless evident that the results of the ice treatment are much superior to any other with which I am familiar. Thus, according to Osler, the mortality rate of 1012 cases in the Montreal General Hospital was 20 per cent., whilst in the Charity Hospital at New Orleans it was 20·01 per cent. Of 1000 cases of pneumonia treated in the Massachusetts General Hospital, from 1822 to 1889, there was a mortality of 25 per cent. In Dr. Hartshorne's valuable paper on Pneumonia it is estimated that the death-rate from this disease in the Pennsylvania Hospital during the years 1884, 1885 and 1886 was a little more than 31 per cent. In comparing the results of the ice treatment, so far as they go, with those which have been obtained from the treatment pursued in the above-mentioned hospitals, I find that they are about eight times better under the former than under the latter method of treatment. It will be of great interest to see whether these satisfactory results can be maintained by future clinical investigation, and if this can be done even approximately it is needless to say that a pronounced advance in the therapeutics of acute pneumonia will have been made.—*The Lancet, July* 8, 1893, *p.* 85.

23.—ON THE PHYSICAL SIGNS OF PLEURAL EFFUSION.

By David Drummond, M.D., Physician to the Newcastle Royal Infirmary.

We have all experienced great difficulty at times in distinguishing between consolidated lung and pleural effusion. This difficulty will, I think, be found to vanish in a surprising manner if we give attention to the signs peculiar to the two conditions.

First let us consider for a moment how it happens that one is so often mistaken for the other; unfortunately, our text-books have contributed largely to the reigning confusion. I think that it will be admitted that the usual book statement, with which we are all familiar, is to the effect that pleural effusion is to be recognised by dulness on percussion, diminution or absence of breath sounds, and diminished vocal resonance and fremitus; and on the other hand, consolidation is marked by dulness on percussion, tabular breathing, and exaggerated vocal fremitus.

Now, I may, possibly, be stating what is already known when I say that for a certain period in the history of almost every pleural effusion, and even when the collection of fluid may be regarded as large, there is decided tubular breathing, and the vocal sounds are markedly pectoriloquous. On the other hand, in many cases of pneumonia the breath sounds are entirely absent, and the vocal fremitus and voice sounds are damped down to a minimum.

I may say that I was made aware of this fact by the frequent use of the hypodermic needle, employed as an explorer, for in common with the majority I was formerly under the impression that tubular or bronchial breathing was in itself sufficient to justify the diagnosis of consolidation as opposed to fluid.

If then the two conditions have so much in common, if there be so much overlapping, how can we differentiate? By attending to the physical signs. First let us deal with the percussion note. I am afraid it is too much our habit to regard *dulness* as an abstract or definite term, instead of possessing, as it does, a purely relative significance, indicating an alteration in the quality of the tone, but nothing more. Now there is usually to be detected a very marked difference between the dulness of pneumonia and the flat toneless sound elicited on percussing a collection of fluid encased within the ribs. The former will be found to possess a certain degree of resonance, while the latter is usually devoid of it. The former may very accurately be imitated by percussing the finger laid on a piece of paper, folded double, and placed on the thigh; whilst the latter resembles the note produced by percussing the finger laid directly on the thigh without any paper intervening. Not only is the note flat and toneless in the case of fluid, but the sense of resistence is markedly increased, another sign of importance. There are a few modifications of the dulness of pneumonia that are striking, and one or two are eminently characteristic. I refer chiefly to the peculiar tympanitic dulness, having some resemblance to the note elicited above the fluid in some cases of pleurisy, known as Skodaic resonance, to which I have ventured to apply the term "apple note." This note, which can be

imitated by percussing a large apple, may often be rung out from a basic pneumonia, and possesses great diagnostic importance, partly because it is so unlike the dulness of fluid, but chiefly because it is apt to be present in pneumonic consolidation, attended by absence of or diminution in the breath and vocal sounds and fremitus. In other words, this "apple" dulness will frequently guide us to a correct diagnosis in cases that are otherwise likely to be confounded. Then the discovery of the hyper-resonant note (Skodaic resonance) above the fluid in front, is a great help. True, the same modified resonance can sometimes be demonstrated above consolidated lung, but it is unobtrusive and may be neglected. The distribution of the dulness is carefully to be made out, for much valuable aid is to be derived from observing its limits, though chiefly when the lesion is on the left side. I refer to the fact that large effusions on the left side render the portion of the chest wall known as Traube's space, absolutely dull; whereas in health, or when consolidation is present, percussion of this area furnishes a tympanitic note, borrowed from the adjacent stomach and intestine. This sign is of so great importance that I may be pardoned if I refer more in detail to the anatomical relations of this particular space. It is situated below and to the outside of the left nipple, and may be said to be bounded below by the margin of the ribs, and above by a curved line passing from the sixth costal cartilage to the tenth rib about the posterior axillary line, forming a semilunar space that may be covered conveniently in the adult by a small hand; its greatest breadth is about four inches. Here then we have normally, or in pneumonia, a hollow tympanitic note, but in cases of large effusion the note is flat and toneless. The explanation of the change is, of course, to be found in the fact that a large collection of fluid pushes the diaphragm away from the chest wall, and with it the hollow viscera lying beneath it. This I have demonstrated by filling a healthy left pleura with water, and then opening the abdomen, when the diaphragm could be seen to bulge down like a child's balloon in the neighbourhood of the spleen and cardiac end of stomach.

I now pass on to the auscultatory signs of pleurisy with effusion. Here we are at once met with the difficulty, already referred to, that the teaching scarcely agrees with the practice, for but few of our text-books recognise the fact that, as interpreted by the stethoscope, the physical signs of pleural effusion may resemble very closely those of solid lung. It is chiefly to this point that I desire to direct attention, for it is perhaps the most striking illustration of the way in which an important condition is overlooked or mistaken by want of attention to physical signs. Even after our attention has been

called to the character of the breath sounds in effusion, it is by no means easy to recognise them when again met with ; but careful examination will enable the observer, after a little practice, to appreciate their value. The difficulty lies in the fact that the fundamental alteration in the breath-sounds during the earlier part of the illness—that is, during the period when fluid may really be confounded with solid—is in the direction of tubularity. For, as already remarked, tubular breathing is a feature of nearly every collection of fluid in the pleural cavity, up to a certain point. The fact is, fluid, even pus, is a fairly good conductor of sound, and, as it collects, so long as the larger divisions of bronchi remain patent, and the side expands sufficiently to draw air into these tubes, the fluid simply serves to obliterate the spongy part of the lung, and thus to cancel the cause at work in changing the tubular sound generated in the larynx and trachea into the soft, so-called, vesicular murmur. It is true that no sooner have the larger divisions of bronchi become compressed than tubular breathing is abolished, and the classical "diminution or absence of breath-sounds" is established. But at this stage there can be little doubt as to the nature of the condition ; the displaced heart, the obliteration of the resonance of Traube's space, the absolutely toneless note, and the marked diminution in the fremitus can leave no room for doubt. We want, indeed, to recognise the presence of fluid (particularly pus) at an earlier period of the illness, and to this end we are aided by the character of the tubular breathing. I will at once admit that it requires a good deal of practice to discriminate between the tubular breathing of fluid and solid, but I maintain that it can be done, and when taken in conjunction with other signs, the diagnosis may be regarded as fairly certain. It may be premised that the term "tubular or bronchial breathing" is employed in clinical medicine to cover a variety of sounds all having a more or less striking resemblance to the sound produced in a tube when air is blown or drawn through it, such as the sounds audible over the larynx, trachea, or primary divisions of the bronchial tubes. I say that there are many varieties of bronchial breathing, and no two cases of pneumonic consolidation are exactly alike in tone, pitch, loudness, &c., and the quality of the sound will vary in different parts of the same chest. So it is with the tubular breathing of fluid. Hence it is more than difficult to give an intelligible description of the distinctions to be drawn between the physical signs of fluid and solid. The chief points by which a distinction can be made are : 1st, the general character of the tubular breathing—fluid is sighing, solid is harsher and more hollow ; 2nd, the inspiratory sound of fluid is sub-tubular, of solid it is decidedly tubular ; 3rd, the sustained expiratory sound of fluid is shorter than that

of solid, and it dies away more gradually; 4th, the sounds of solid are nearer to the ear, those of fluid more distant and aerial.

The vocal sounds in pleural effusion, so long as the tubes are patent and the breath-sounds are tubular, bear an unfortunate resemblance to those of pneumonic consolidation. Here again, however, attention to detail will often enable the auscultator to differentiate. In the case of solid lung the voice when raised up to or beyond the pitch of ordinary speaking is loud and more or less distinctly heard, though it is somewhat masked by harsh sonorous vibrations (bronchophony). When fluid is present, on the other hand, the voice is still loud, though more distinct, and is to a great extent free from the buzzing or murmuring resonance of pneumonia, and it may be bleating or ægophonic. When the voice is lowered to a sibilant whisper pectoriloquy is very distinct when fluid is present—the clear, small voice seeming to enter the bell of the stethoscope direct from the chest. In pneumonia the whispered voice is also audible, but it is not quite devoid of the bronchophonic characteristic, and therefore is less distinct; in other words, the pectoriloquous character is not so pronounced.

I now come to what I may call the unequivocal signs of pleural effusion. Hitherto experience has played an important part in interpreting signs in a marked degree common to both fluid and solid, but now a fairly broad line serves to divide one from the other. These are so well known that they can be dismissed with a few words. The vibrations of the chest-wall, detected by the hand when the patient is speaking—vocal fremitus—serve a very useful purpose in diagnosis. The exaggerated fremitus of pneumonia forms a striking contrast to the issue in the case of fluid, when the fremitus is either lost or diminished. It must not, however, be forgotten, that when the tubes are blocked in pneumonic or other consolidation, the fremitus is almost entirely abolished—a state of things that leads often to marked confusion.

Displacement of the heart's impulse is of immense value as a sign of pleural effusion. The heart, of course, is drawn over to the sound side by the healthy lung, and the displacement may be very considerable, particularly if the effusion be on the left side. This sign alone will often turn the balance of opinion in favour of fluid in a doubtful case, and should be sought for in every instance.

Notwithstanding the most careful examination, the case may still be doubtful, and then that most valuable of diagnostic instruments, the exploring hypodermic needle must be appealed to. With strict antiseptic precautions the needle may be introduced without any risk, and, moreover, if the point be

sharp the pain is exceedingly slight. I have the greatest confidence in urging the more frequent use of the needle, for not only does it serve to clear up cases of difficulty, and therefore is invaluable at times, but it is an important factor in our clinical education, particularly in clinical teaching, for its information impresses the mind of the student, as well, indeed, as that of the teacher, with the true value of physical signs freshly elicited.—*Dublin Journal of Medical Science, December* 1892, *p.* 472.

24.—ON STRYCHNIA IN ACUTE PNEUMONIA.

By J. West Roosevelt, M.D., Physician to Belle Vue Hospital, New York.

That death in a large number of cases of acute lobar pneumonia is directly caused by the exhaustion of the heart which the disease-process produces is generally admitted. It is well known that patients suffering from this malady are very prone to syncope upon slight exertion ; indeed, a number of cases are on record in which sudden death has followed the effort to sit up in bed for the purpose of facilitating the physical examination of the chest. In a considerable number of cases death takes place very suddenly, as it sometimes does in pleurisy with effusion, from syncope not caused by muscular exertion. In still others œdema of the lungs precedes the fatal issue. In all these cases it is the heart failure which kills. With the causes of this failure we have but little to do in the present paper. It is my desire to speak only of certain clinical phenomena, not to discuss theories.

Acute lobar pneumonia is a self-limited disease, which usually terminates by crisis within ten days. In very many cases, sooner or later the heart becomes weak, and in fatal cases death often results from heart-failure. Sometimes the heart-weakness is manifest at the beginning of the disorder, but more often it only becomes evident after the illness has lasted several days. It is very apt to be pronounced about the time the crisis is generally to be expected, and death is very common at this time (*i.e.*, between the sixth and tenth days). The disease is of short duration ; if the heart can be forced to act for a few days recovery may be expected, and there is reason to believe that judicious treatment with cardiac stimulants can save many lives.

The principal stimulants commonly used in pneumonia are alcohol in some form, digitalis, convallaria, and strophanthus, either singly or in combination ; caffeine, ammonium carbonate,

ether, some of the nitrites, opium, musk, nux vomica. There are, of course, a number of other heart-stimulants, but the ones mentioned are the most important.

There is, it seems to me, a good deal of difference of opinion as to the indications for exhibiting stimulants. On the whole, are we not apt to use them before the patient's condition demands them? The principal reason for their administration is their effect upon the circulatory system; their action upon the rest of the body-machinery is not taken into account. (It will be understood that I speak of the drugs named only as they are employed for the purpose of "stimulation" in the clinical meaning of the word.) There is an idea which has been often set forth, and which is often applied to-day, that it is right to stimulate in all cases where there is reason to expect weakness of the heart to result from some acute disease long before such weakness becomes manifest. Syllogistically expressed in regard to pneumonia, it is: "Heart-weakness may be expected to result from the disease within from twenty-four hours to ten days; therefore, let us forestall it by immediately giving stimulants, regardless of the present condition of the heart." This is the actual practice of many. It would be as rational to say to an athlete, "You are to be submitted to a severe strain in a short time; you had better take a good deal of liquor." The athlete knows that to take stimulants in order to prepare for some strain upon his muscles which is not imminent, is folly. The heart is a muscle, and to stimulate it needlessly is to exhaust it. The need for stimulation is determined by the actually existing condition of the circulatory system, not by some condition which may obtain in the future. If a patient with pneumonia has a good pulse and shows no evidence of imperfect circulation, it is worse than folly to stimulate.

Alcohol administered in wine, liquor, or some other solution, is of the greatest value. It is needless to say more about it than has already been said, namely, that it is not well to give it without definite reason. In regard to digitalis, strophanthus, and convallaria, I can only say that I have never seen a single case of pneumonia in which benefit seemed to result from their use. This may be because of my limited experience, but it is a fact. Opium and morphine have both seemed to be of distinct value as stimulants in a number of my cases. Passing over the other drugs, I wish to call attention to strychnine as a cardiac stimulant.

Strychnine has been in use for this purpose for a long time. I have not been able to learn who first recommended it. Its value does not seem to have been appreciated by the majority of the profession. While I do not pretend that it is capable of producing marvellous effects, I think it has a value which should

not be overlooked. Especially is this so in patients in whom alcohol is powerless, as in old drunkards. It has seemed to me to increase the heart's strength in a remarkable way in a number of such cases. It has also seemed a most valuable drug when given in addition to alcohol in suitable cases, since it appears to increase the stimulating effects of the latter.

It must be given in large doses. By far the safest mode of administration is hypodermic. Given in this way each dose exerts its influence promptly, and there is no tendency to cause the so-called "cumulative action." From $\frac{1}{30}$ to $\frac{1}{20}$ grain may be given at a time, and the same or a smaller dose repeated every half-hour, if necessary, until the heart becomes stronger or toxic symptoms begin to appear. The limit of safety may be assumed to have been reached as soon as a distinct exaggeration of the deep reflexes appears. The way I have adopted for demonstrating such an exaggeration is very simple. It is to lift the patient's forearm, the hand being allowed to hang with the extensors relaxed, and to strike the tendon of the supinator longus. If a marked contraction of this muscle occur, it is fair to assume that the reflexes are exaggerated.

Strychnine is what might be called an honest drug, for it gives warning of toxic symptoms long before the latter appear, provided it is used hypodermically. I repeat that I do not wish to claim for it more than a limited range of utility, though I think it may prove as valuable as alcohol for heart stimulation. —*New York Medical Record*, *December* 24, 1893, *p.* 728.

25.—THE EFFECTS OF HIGH ALTITUDES ON PHTHISIS.

By C. Theodore Williams, M.D., F.R.C.P., Senior Physician to the Hospital for Consumption and Diseases of the Chest, Bromoton.

The use of high altitudes in the treatment of phthisis was, according to Dr. Archibald Smith, an established practice in South America for many years before it was introduced into Europe to the notice of medicine by Drs. Archibald Smith himself, Guilbert, Lombard, Jourdanet, Brehmer, and others, but this country owes its first clear scientific knowledge of the treatment to Dr. Hermann Weber, who contributed a valuable paper to vol. lii of the *Medico-Chirurgical Transactions* entitled "On the Treatment of Phthisis by Prolonged Residence in Elevated Regions," which first directed my attention, and I believe that of others, to the subject, and caused me to pay a

special visit in 1872 to Davos and St. Moritz with the object of investigating the climate and its effects. What I found by examining German consumptives at Davos—for there were then no English there—convinced me of the value of the treatment, and as soon as proper arrangements were made for the reception of English invalids, in the shape of an English-speaking doctor and hotels that would cater for English and not only for German requirements, I began sending patients, and I believe I have sent over 300 altogether to winter in these and other high altitude sanitaria. Of these, 247 cases of phthisis have been tabulated and form the basis of statistics which will now be given.

Sex.—183 were males, 64 were females, or, roughly speaking, three-fourths of the former and one-fourth of the latter.

Ages.—The average age for the males was 28 years, and for the females 25·5. The great mass of both sexes were between 20 and 30 ; 11 per cent. of the males and 22 per cent. of the females were under 20, and only 7 per cent. of both sexes over 40.

The length of illness before climatic treatment was for the whole number 23·89 months ; for the males, 19·06 months ; for the females, 35·04 months ; and this average was thus composed—102 had been ill for less than a year, some for only 2 or 3 months, others for 2, 3, 4, 5, 6, 7, or 8 years, 1 had a history of 9 years, 1 of 10, 2 of 16, and 1 of 20 years.

Family predisposition was present in 97 cases, or 40 per cent. ; hæmoptysis in 112, or 45 per cent.

History and Nature of Cases.—The following complications existed : 3 of these patients had malformations of the thorax, of the pigeon-breast type, 1 had spinal curvature, 4 strumous abscesses of various parts of the body, 1 fistula *in ano*, 2 suffered from tuberculous testicle, 5 had syphilis, 4 had cardiac lesions (1 aortic regurgitant and 3 mitral regurgitant disease), 1 had laryngeal catarrh (not tuberculous), 3 had dry basic pleurisy, 11 were cases of hemorrhagic phthisis, and 2 of the catarrhal form ; the rest of the patients were examples of chronic phthisis, as a rule without pyrexia, the existence of which would at once have precluded the recommendation of high altitudes, my experience being that the climate generally augments pyrexia.

State of Lungs.—One hundred and sixty-one or 65 per cent., were in the first or tuberculous stage, 67 having the right lung, 42 the left lung, and 52 both lungs affected. The extent of tuberculosis varied considerably, from disease of an apex to that of a lobe, but in all cases the lesion was undoubted, and in many the consolidation extensive. Softening and excavations were present in 86, or 35 per cent. ; in 37 patients in the right lung, in 48 in the left lung, and in 1 in both lungs. Of the right lung cavity cases the disease was limited to the right lung in 25, in 12 the left lung was also tuberculised. Of the left lung cavity

cases the disease was limited to the left lung in 22, and in 26 the right lung also was affected. Summing up, 65 per cent. of the patients were in the tuberculisation stage, and 35 per cent. in the softening and excavation stage. The disease was unilateral in 63 per cent., and bilateral in 37 per cent.; the right lung alone was affected in 37 per cent., and the left alone in 26 per cent.

Length of Residence at High Altitudes.—The average residence of these 247 patients at high altitudes was 12·22 months, a little above a year, but this large average is deceptive, as it includes a certain number of persons in whom the disease has been arrested, but who have become residents in the sanitaria. The great mass of these patients have been, on an average, ten months, or about two winters each, at high altitudes; 123 patients passed collectively 128 years and 8 months at Davos, 1 spent 6 months at Arosa, 108 spent 72 years 11 months at St. Moritz, 10 passed 4 years 4 months at Maloja (this when the hotel was open in winter), 2 passed 13 months at Wiesen, 9 passed 22 years 10 months on the South African Highlands, and 6 spent 119 months in Colorado and New Mexico.

General Results.—Among the 246 patients a cure was effected in 101, or 40·89 per cent.; great improvement in 73, or 29·55 per cent.; improvement in 32, or 12·95 per cent.; making a total of improved 206, or 83·40 per cent.; 5 patients remained in a stationary condition, and 36, or 14·57 per cent., became worse. Roughly speaking, nearly seven-eighths improved and one-eighth deteriorated, of whom 48, or 19·43 per cent., died.

Local Results.—I have somewhat varied the classification of results from that of the other groups, making two classes where formerly only one existed, namely, arrest and partial arrest. By arrest is meant in the case of first stage patients, disappearance of all physical signs of disease. This is sometimes so complete that the medical examiner has to refer to his notes to ascertain which lung was affected. In the case of softening and excavation cases, arrest signifies disappearance of cavernous sounds, and even of signs of consolidation, and nothing to be detected beyond deficiency of expansion, some hard breathing over the whole side, and tubular breathing or prolonged expiration above the scapula. In some cases not even these signs are present. In contracted cavity cases there was a certain degree of immobility of the side and flattening of the thoracic wall, combined with hyper-resonance and prolonged expiratory sound.

Partial arrest means that though there is evidence of arrest of the disease, some physical signs remain, indicating limited consolidation or a contracting cavity.

Arrest took place in 105, or 42·85 per cent.

Partial arrest in 66, or 26·83 per cent.

Decrease took place in 14, or 5·71 per cent.

This makes a total of improved of 185, or 75·51 per cent.

In 14 there was advance of disease; in 20 advance and extension; in 13 extension alone, making a total of 47 worse, or 19·18 per cent.; and in 13 patients, or in 5½ per cent., the disease remained stationary.

Among the 159 first stagers, there were 91, or 57·23 per cent. of arrests; 41, or 25·78 per cent. of partial arrest, and 6 decreases; making the large total of 138 improved, or 87 per cent.; and only 10·69 per cent. worse. The improved among unilateral cases mounted up to 91·5 per cent., the right lung being a shade more favourable than the left lung, but where both apices were involved the percentage of improved was 76·5.

The most surprising feature is the large figure of absolute arrests, which not only were far more numerous than in other climatic results, but were more complete. The "decrease of disease" only forms a very small item in the list.

Now we come to the second and third stages, and we see that in 17, or in 16 per cent., there was "arrest of disease" in 25, or 29 per cent. "partial arrest," and in 8 "decrease of disease," or making a total improved of 47, or 54·5 per cent. Nine patients remained in a stationary condition, and 30 showed either advance, advance and extension, or extension of disease, making a total of 30, or 35 per cent. of worse. The rise in the proportion of the worse among these, as compared with those in the first stage, is very striking, the number being doubled; and this is a good deal due to the double affection patients; as the percentage of improved among the unilateral cavity cases is for the right, 68 per cent., and for the left, 54½ per cent.; whereas for the bilateral it is 49 per cent.

It may be interesting to compare the results of other physicians.

Dr. Hermann Weber told us, in discussing a paper of mine read at the Royal Medical and Chirurgical Society, 1888, that out of 106 phthisical patients he sent to high altitudes, 38 were cured, either permanently or temporarily, 42 greatly improved, 16 were stationary or but slightly improved, and 10 deteriorated. Of these 106 cases, 70 were in the first stage, of whom 36 were cured, 28 greatly improved, 11 were stationary, and 6 deteriorated. Of the 36 second and third stages, 2 were cured, 14 improved, 12 were stationary, and 8 deteriorated. These results, though as the general and local improvement is massed into one category it is difficult to make an accurate comparison, on the whole closely resemble my own results, but the cases, as they include a smaller number of second and third stage patients, are more favourable; like mine, they present a very large percentage of improved for first stage cases.

Dr. Fisk, of Denver, has furnished statistics of 100 phthisicals residing at Denver, only 4 of whom were females, and his results are : 67 per cent. more or less improved, 7 per cent. worse, 26 per cent. of deaths, and he calculates on 2 out of every 3 patients improving in Colorado.

Dr. Solly, of Colorado Springs, extracted from his note-books 141 cases of phthisis, and did me the honour to frame his statistics exactly on the same lines as mine. His cases were, altogether, less favourable than mine. The patients had a longer history of illness, had more pyrexial complications, and contained more cavity cases and fewer first stagers. His results were general, and local improvement in 67=37 per cent. ; deterioration in 32=63 per cent.

Dr. Denison, of Denver, published some years ago statistics of 202 consumptives residing in Denver, for an average of 1 year 9 months (a longer stay than that of my patients). They consisted of 148 males and 54 females, with an average history of two years' illness before climatic treatment ; 37 per cent. were in the first stage and 63 per cent. in the second and third stages ; 56 per cent. had both lungs affected. These patients were far less favourable than mine, but Dr. Denison's results were 69 per cent. improved, 12 per cent. stationary, and 28 per cent. worse—a very successful result, and confirming the above.

To return to my high altitude cases, they appear to warrant the following conclusions :—(1) Enlargement of the thorax takes place unless opposed by the growth of fibrosis or by extensive pleuritic adhesions. (2) Males and females seem to do equally well, and profit most between the ages of 20 and 30—males over 30 and females under 20 benefiting least. (3) The climate is specially beneficial in hemorrhagic cases and in hereditary cases, and appears in the latter class to exercise a distinctly counteracting influence on the development of phthisis. (4) It is most effective in cases of recent date, though of utility in those of long standing, and, to insure its full benefit at least six months', and in many cases two years' stay is desirable. (5) With regard to the actual results of the climate, it undoubtedly produces great improvement in 75 per cent. of cases of phthisis generally, and in 43 per cent. it causes more or less complete arrest of the tuberculous process.

Its beneficial influence is best shown in tuberculous consolidation, where improvement may be looked for in 87 per cent. and arrest in 57 per cent. Arrest takes place in 16 per cent. of the patients with excavation, and great improvement in 55 per cent.

Residence at high altitudes causes hypertrophy of the healthy lung tissue and local pulmonary emphysema around the tuberculous lesions, giving rise, in due time, to thoracic enlargement. It is possible that arrest of tuberculous disease is partly owing to

the pressure exercised on the tuberculous masses by the increasing bulk of surrounding lung tissue, which, by emptying the blood-vessels, promotes caseation and cretification of the tubercle.

These changes are accompanied by general improvement in digestion and assimilation, the cessation of all symptoms of disease, the return of natural functions, as the menstrual in females, when suspended, gain of weight, colour, muscular, respiratory, and circulatory power.—*British Medical Journal*, *August* 1, 1893, *p.* 684.

26.—ON THE TREATMENT OF BRONCHIECTASIS.

By T. Grainger Stewart, M.D., Professor of Medicine in the University of Edinburgh.

For many years I have taken a special interest in the subject of bronchiectasis, having met with a series of cases during the time that I was pathologist and extra-physician to the Royal Infirmary, which seemed to me to support a theory of the disease different from that which had been generally accepted. The generally accepted theory then was, and to a large extent still is, that the dilatations are produced by the contraction of fibrous tissue in the lungs, and in dense adhesions connecting the lungs with the thoracic wall. This was the view maintained by Sir Dominic Corrigan.

Now, my cases seemed to show that while dilatations do certainly occur, as Corrigan supposed, in cases of fibroid phthisis, that process does not explain many, and indeed the most typical, examples of the disease. For bronchiectasis is often present when there is no cirrhosis, and in not a few instances the fibroid change follows upon it as a secondary consequence. I, therefore, maintained that an atrophic process in the walls of bronchial tubes affords the real explanation, and that, given such an atrophy, the pressure of the air in the respiratory tract leads to the opening out of the tubes, while, as a further consequence, accumulation and decomposition of the mucus necessarily follows, and this gives rise to further anatomical changes in the mucous and other coats of the bronchi, and in the surrounding pulmonary tissue, and explains the great clinical features of the malady. To this accumulation and decomposition are due the fœtor of the breath and the sputum, and the peculiar attacks of coughing as local results, and the occasional febrile attacks and general disturbance of the system as results of the absorption of the poisonous products of decomposition.

My observations during the twenty-six years which have elapsed since I wrote upon this subject have confirmed the views which were then expressed, and in accordance with this I have been striving to find remedies which might be useful. It was clear enough that we have little in our power in the way of preventing the occurrence of the atrophy, and that except by keeping down cough, so far as that might be warrantable, we could but slightly interfere with the pressure conditions which tend to dilate the weakened walls. But on the other hand, the constant aim has been to prevent decomposition of the sputum and its consequences. And this we have sought to do in many ways. The administration of turpentine, creasote, carbolic acid, salol, and other antiseptics by the stomach, making the patient live in an atmosphere saturated with volatile antiseptic substances, directing sprays and vapour of various kinds into the air passages, have all been sedulously tried with greater or less, but on the whole a very limited and temporary advantage.

During the past winter I have adopted a plan which has proved eminently satisfactory in the one case in which I have tried it. It consists in the intratracheal injection of menthol and guaiacol with olive oil. The proportions which we used were: Menthol, 10 parts; guaiacol, 2 parts, olive oil, 88 parts. Of this a drachm was injected into the trachea twice daily. The result was a speedy diminution and disappearance of the fœtor, with improvement in all respects.

The patient, J. M., a surfaceman, aged 34, was admitted to Ward 22 on December 5th, 1892, complaining of bronchitis with fœtor of breath. His family history was good, and he had been quite healthy until two years ago, when he had disease of the mastoid cells, and was successfully treated in the surgical wards by Mr. Millis. On leaving the hospital he caught cold, and was unable to throw it off. Soon after it set in he and his companions observed that his breath had become offensive, and that on coughing he brought up a quantity of foul-smelling yellow mucus. These symptoms continued, and gradually became more severe, while he became subject to occasional feverish attacks and exacerbations of cold, and his strength failed.

On admission he was very ill; thin, emaciated, flushed about the cheeks, with a dirty complexion and an oily appearance of skin. His temperature which was 102° on admission, rose to 103·4° when he had been for a short time in bed, and his expression was very anxious. His breath was very offensive, and he was expectorating large quantities of intensely fœtid sputum, which, in spite of carbolic acid being placed in the dish and its vapour freely disengaged on each side of his bed, permeated the whole ward and the vestibule leading to it.

On examination his alimentary system was found to be badly deranged, his phlegm foul, his appetite and digestion much impaired, and his bowels constipated.

The hæmopoietic system showed no special change.

The circulatory showed rapid and rather feeble action of the heart, but no evidence of organic change in it or in the vessels.

The respiratory system was much affected. There was considerable dyspnœa and frequent cough. The fits of coughing were peculiarly prolonged, and at first resultless, but ultimately attended by the discharge of a large quantity of grey-greenish-yellow expectoration with an oily look, and the most repulsive fœtor.

On microscopic examination the sputum showed large numbers of pus cells, oil globules, fatty crystals, and on one occasion some fragments of pulmonary elastic tissue, but no tubercle bacilli. The chest was fairly well formed : the percussion note anteriorly was clear throughout; posteriorly at and below the position at the root of the lungs the note was altered, being in some parts dull, in others high pitched and tympanitic. This was especially marked on the left side. On auscultation the ordinary signs of bronchitis were audible at almost every point on both lungs, but near the inferior angles of the scapulæ behind, the breathing was at several points cavernous, and accompanied by numerous crepitations, fine, medium, coarse, and bubbling *râles*; the vocal resonance being at these points pectoriloquous. Towards the apices and the extreme bases there was no evidence of consolidation.

Excepting for the dusky colour and oiliness, the skin was natural. The urinary, nervous, and locomotory systems showed no changes except those proper to the feverish condition.

The history of the case, as well as the characters of the sputum, made it clear that the fœtor was not due to pulmonary gangrene, and the physical signs made it certain that vomicæ existed in the lung; these vomicæ might have been phthisical or bronchiectatic. That they were not due to phthisis was clear from their position, from the long-standing fœtor, from the characters of the sputum itself, and in particular the absence of the tubercle bacilli, while in all respects both the symptoms and signs corresponded to those of bronchiectasis.

I pointed out to the students at the time how this diagnosis was justified, and how the very distinct and unmistakable signs of cavity were not associated with any considerable consolidation of lung, certainly no such consolidation as would warrant the belief that the dilatations were due to fibroid contractions.

For some days we tried our old plans of treatment, giving terebene capsules containing 10 minims every four hours pills

containing 1½ grain of creasote three times a day, inhalation of creasote vapour, and surrounding the patient with an antiseptic atmosphere; but some days later, in addition, we injected twice daily the menthol and guaiacol, as I have already said, in doses of a drachm twice a day. The result was that the fœtor of the breath and sputum rapidly diminished, and in a week was entirely gone; that the sputum gradually diminished in amount, that the temperature speedily fell to normal, the general symptoms disappeared, the appetite returned, and the digestive process became re-established. On admission the patient weighed 9 st.; December 23rd, 9 st. 4½ lbs.; 30th, 9 st. 6½ lbs.; January 6th, 9 st. 11 lbs.; and when he reported himself at the hospital on March 14th he was 10 st. 6 lbs.

The intratracheal injections were continued regularly until he left the infirmary January 10th, 1893; and since that time he has had them occasionally, at first every Saturday and Sunday, and then gradually less frequently. When last examined he was perfectly free from fœtor, his respiration was tranquil, and he had little cough. There was little dulness on percussion; the bronchitic sounds had disappeared, and over the seats of the vomica, while cavernous breathing and pectoriloquy remained, the accompaniments had entirely disappeared.

Had this treatment not proved successful I intended to try operative interference, and I shall briefly relate the facts of a case which was under my care some years ago, and in which such treatment was adopted with good result.

The patient, K. M., aged 27, was admitted to the Royal Infirmary, March 14th, 1887, suffering from cough and profuse expectoration of the most offensive character. About nine years before he had had a severe attack of pleurisy. Before that time he had been healthy, but afterwards his general health suffered. Cough became more frequent; sputum more copious and fœtid; and his mental powers, probably never bright, declined until he became little better than an idiot. On admission he was emaciated and generally in bad health; his breath was offensive, and he coughed frequently and expectorated an enormous amount of the most abominably fœtid sputum, the odour of which could only be partially disguised by the continual evaporation of carbolic acid and eucalyptus oil in the room where he slept. The left side of the chest was much contracted, and moved less than the right; the percussion note was dull anteriorly and at the apex and base posteriorly; over the middle region of the lung posteriorly the note was more or less tympanitic, and most markedly so just above and internal to the lower angle of the scapula. At this point, too, the auscultatory signs of a cavity were very marked. The

breathing was loudly amphoric, with marked pectoriloquy, and there were moist sounds on coughing. These latter were, however, most marked towards the base of the lung, and there, as well as at the apex, the breathing was bronchial. Anteriorly in the third and fourth inter-spaces to the left of the cardiac area and at the same level in the axilla the breathing was cavernous and the vocal resonance increased. In addition to surrounding the patient with an antiseptic atmosphere, large doses of terebene were given internally, but no real improvement followed, and so, as I had no doubt that we had to deal with a case of bronchiectasis with certainly one main cavity, I resolved to interfere surgically, and requested the co-operation of Mr. Caird.

On April 13th, about a month after the patient's admission to the hospital, the patient having been put under chloroform, the needle of an aspirator was entered below the angle of the scapulæ, but without result. It was again introduced outside the angle and the cavity was reached. A free incision enabled Mr. Caird to force a pair of sinus forceps alongside of the needle, which was then withdrawn, and the track thus formed was dilated gradually, until by the resection of about two inches of rib the finger could be introduced. A counter opening was made at a lower point in order to admit of free drainage; large sized rubber tubes were inserted and the cavity regularly washed out with warm boracic acid lotion.

From the time of the operation the fœtor disappeared, and but for the fact that three smart hemorrhages occurred from the interior of the cavity about a fortnight after the opening had been made, there were no unfavourable symptoms. The patient recovered health and strength, and when I last heard of him was in good health.

My experience in this case seems to warrant the adoption of operative measures in any case where the simple and safe remedy which I am to day recommending fails.—*British Medical Journal, June* 3, 1893, *p.* 1147.

27.—THE FREQUENCY OF TUBERCULOUS PLEURISY IN HOSPITAL PRACTICE.

By W. Osler, M.D., Professor of Medicine in the Johns Hopkins University.

Passing from the certain and definite data of the post-mortem room, let us turn to the wards and inquire into the etiology of the cases of acute pleurisy which have been under observation. I have thought it better to review only those cases in which

there has been a pleurisy with effusion coming on acutely or subacutely, and in which the effusion was sero-fibrinous, not simply fibrinous and not purulent. I have excluded the former from analysis because of the very great frequency, as the post-mortem reports show, of a simple fibrinous pleurisy in so many varied conditions, often overlooked clinically, of which, of course, tuberculosis is one, indeed one of the most common. I have not included the purulent cases, partly because there is here much less dispute, as they have a more definite and well-recognised etiology, and partly from the fact that abscess of the pleura—empyema—is regarded with us as a strictly surgical affection, and the cases are either admitted directly to the surgical wards or turned over at once. This may account for the somewhat remarkable absence of purulent pleurisies in the post-mortem records of cases from my wards, apart from the instances of pneumo-thorax. Still it must be noted that of 14 cases of empyema operated upon, 12 recovered, exclusive of the cases of empyema with pneumothorax. The cases in the following analysis, then, have been admitted to the wards with well-marked signs of pleurisy with effusion. Of the 58 cases 45 were males, 13 females; 10 were in the coloured race, 48 in the white.

In attempting to estimate from the clinical side of the tuberculous character of a pleurisy the following points are to be considered :—

(1) Mode of onset. In reality this is not a criterion of any moment since it must be acknowledged that an acute tuberculosis of the pleura may come on abruptly with a stitch in the side, or even with a chill. A slow insidious onset is more common, but by no means characteristic.

It is so difficult to obtain from hospital patients accurate information as to the mode of onset, often indeed as to the duration of their illness before admission, that we cannot place very much reliance upon the facts so obtained ; but the errors, I suppose, are equally common throughout the entire class. As a general rule, too, the patients do not seek relief until the symptoms have become aggravated. Thus it is interesting to note that in the 58 cases of sero-fibrinous pleurisy the duration of illness prior to admission was given as one week and under in 8 cases ; between one and two weeks, 16 cases ; between two and three weeks, 7 cases ; one month and over, 25 cases.

Of the symptoms for which they sought relief the following were the most striking: In 2 cases no history could be obtained. Of the remaining 56 cases the symptoms for which they sought relief were, as a rule, cough, dyspnœa and pain in the side; more rarely fever or chills and fever. Thus, in 45 cases, the patient complained of cough ; in 44 of dyspnœa ; in 41 of pain in the

side ; and in 14 there was a history of chills and fever. Cough and dyspnœa are by far the most frequent causes for which the patient seeks relief in hospital. In two only of the cases did the patient give any definite account of an exposure to cold or of a wetting. As stated, the onset is no etiological criterion, and the claim at present is, that a great majority of the cases of pleurisy *a frigore* are, in reality, tuberculous. In the history obtained from the patient, however, there may be very suggestive features ; for instance, cough and loss of weight for some months previous, or hæmoptysis, or a previous attack of pleurisy. Thus, one patient had had a cough at intervals for three years, and when admitted, the right side of the chest was full of greenish, sero-purulent fluid. After many tappings he improved very much, and, though the cough had persisted for so long, there was no sign of pulmonary disease, but subsequently bacilli were found in the expectoration. Another interesting case had hæmoptysis nine months before, and though he was an extremely robust, vigorous man, the insidious onset of the pleurisy led us to suspect tuberculosis. Bacilli were demonstrated in the exudate. The patient subsequently developed pulmonary tuberculosis.

(2) A point, on which more stress has been laid than the facts justify, is the family history ; but inheritance is now generally acknowledged to be of a susceptible soil, rarely of the germ itself. Local conditions are probably of most importance in influencing the susceptibility to an infectious agent so widely diffused as that of tuberculosis. Still it is interesting to note the presence or absence of tuberculosis in the ascendants or near relatives ; thus in two of the fifty-eight cases the father died of tuberculosis ; in four, the mother ; in one, the father and mother ; in six, a brother or sister ; in one, a brother and sister ; in four, an aunt or uncle ; and in two the wife died of tuberculosis, in one the husband. In 37 of the cases positive questions as to tuberculosis in the family were answered in the negative, and in three it could not be obtained.

(3) The character and contents of the exudate. There is nothing specific in the physical character of the effusion in tuberculous pleurisy, nothing from which on aspiration a definite opinion can be formed. The exudate may be sero-fibrinous, simply serous, hemorrhagic, sero-purulent or purulent. Of these, hemorrhagic and the thin sero-purulent may be called suggestive. Of the cases of acute pleurisy with effusion, at the clinic, seven were blood-tinged. Of the cases from the wards in which pleurisy was found post-mortem, in four the effusion was hemorrhagic ; of these, two were tuberculous and two were simple. The thin sero-purulent exudate, a little opalescent, often with a greenish tint, and which microscopically contains

a granular, fatty matter and only a few leucocytes, is very suggestive of a tuberculous lesion. The cover-slip and culture-tests, so much practised of late, yield variable results. In the first place, it is conceded that the great majority of tuberculous sero-fibrinous effusions are sterile ; organisms are neither found on cover-slip preparations nor does anything grow in cultures. Our own experience is in accord with this, except that in one case the tubercle bacilli were definitely determined in the exudate. This was after repeated tappings. A sterile effusion is regarded as a point in favour of the tuberculous nature. In the purulent tuberculous exudates the bacteriological results are also variable. In some of the acute cases, as in one which I shall describe shortly, the bacilli of Koch were abundant. In other instances only pus organisms or the diplococci are present, or there may be no micro-organisms. A more important and more satisfactory test is the inoculation of the exudate into the peritoneal cavity of guinea-pigs, experiments which in the hands of some of the French observers have yielded positive results in the sero-fibrinous and purulent pleurisies of individuals apparently not tuberculous.

When Koch's tuberculin was in vogue, it was hoped that it might at any rate give us a means of positive diagnosis. The report of the German hospitals shows that in the subjects positively tuberculous the great proportion of them present reaction, whereas in suspected individuals about 60 per cent., and in non-tuberculous subjects only about 25 per cent.

And lastly, the nature of the pleurisy may not be apparent for months or years, when the onset of a tuberculosis in other parts may indicate clearly the character of the whole process. Striking statistics have been published of late years, none more interesting than those by Dr. Vincent Y. Bowditch from his father's records. Such statistics from private practice are of infinitely more value, as a rule, than those from hospitals. The time has been altogether too limited at the Johns Hopkins Hospital to determine, even if we could, the subsequent history of the great proportion of the cases of sero-fibrinous pleurisy which have been under treatment. It is interesting to note, however, in striking contrast to figures from some hospitals, that so far as our records go, only five of these patients have subsequently had tuberculosis. While our hospital figures are by no means in favour of the view that a large proportion of all sero-fibrinous pleurisies are of a tuberculous nature, I must confess that in private practice I have, year by year, been increasingly impressed by the frequency with which the subjects of pleurisy with effusion subsequently become tuberculous. —*The Shattuck Lecture, Boston Medical and Surgical Journal, July* 20, 1893, *p.* 53.

28.—ON THE DIAGNOSIS AND TREATMENT OF TUBERCULOUS PLEURISY.

By W. Osler, M.D., Professor of Medicine in the Johns Hopkins University

A disease presenting clinical variations so extreme must necessarily offer at times serious difficulties in its detection. At the outset it may be frankly acknowledged that often in cases of acute sero-fibrinous pleurisy, coming on with chills and fever and gradual effusion, we have not the data upon which to base a diagnosis. Neither the appearance of the individual, the family history, the onset, the course, or the character of the exudate may be in any way suggestive. On the one hand, there can be no question that many instances occur in robust individuals of previous good health, with all the characters of pleurisy *a frigore;* and yet the subsequent history may point very clearly to the fact that the process has been from the outset tuberculous. On the other hand, the view which has of late found so much favour, that a large proportion of all acute pleurisies are tuberculous, is certainly unfounded, as shown by the post-mortem notes already referred to (see *Synopsis* of this volume), in which non-tuberculous pleurisy of one form or another was present in two-thirds of an unselected series of cases from medical wards. I have already called attention to the points to be specially investigated; the antecedents, family and personal, the careful inspection of the groups of lymph glands contiguous to the pleura, the repeated examinations of the expectoration, which may contain tubercle bacilli from even a very small focus of softening tubercle in communication with the bronchus. On more than one occasion it has happened that their discovery after repeated examination has cleared up the nature of an obscure pleurisy. The physical characters of the exudate offer in a majority of instances nothing distinctive. A hemorrhagic exudation is suggestive but by no means distinctive, inasmuch as it may occur in cancer, or it may occur with ordinary simple pleurisy, as in two instances in our list. It is important to note that the effusion may be hemorrhagic in either a chronic or in an acute form. I call to mind one instance in which the presence of hemorrhagic exudate led us to suspect a terminal tuberculous pleurisy, but there were no tubercles on the membranes.

The bacteriological examination has been made now so frequently in acute pleurisies that there are facts enough at our disposal to warrant a somewhat definite opinion, and the general conclusion is that, except in very rare instances, the serous exudates are sterile, and tubercle bacilli have only been

detected in a very moderate number, in only 32 cases, according to the recent article of Prince Ludwig Ferdinand of Bavaria. The inoculation of the exudate into the peritoneum of the guinea pig, which has been practised in many cases, also gives variable results, but when positive is of great value.

The inoculation with tuberculin is, as mentioned, uncertain, and I may state here an instance in which it led us into error. Just as we were beginning to try it the late Dr. Christopher Johnston sent into the wards a young woman aged about twenty-eight or twenty-nine with a bunch of enlarged lymph glands on the left side of the neck and the axilla. She was fairly well nourished and made no other complaint but of gradual and progressive enlargement of these groups during several months. Within ten days or two weeks after admission a pleurisy developed on the same side, which we very naturally thought to be tuberculous. She was treated with injections, and the reaction on each occasion was particularly active. No benefit, however, followed them, and some weeks later she went to her home, where she shortly afterwards died. The autopsy, performed by Dr. Councilman, showed cancerous lymph glands in the sub-clavicular and axillary regions and extensive cancerous pleurisy—the primary disease being a nodule of carcinoma about the size of a walnut in the left breast. Some months subsequently, in illustration of the curious coincidences which we all meet in practice, I saw a case presenting striking similarities in the practice of Dr. Burns, of Toronto, also in a comparatively young woman, but the infiltration about the pectoral muscle called my attention to the condition of the breast.

The diagnosis of the purulent form of tuberculous pleurisy is less difficult. A proportion of these, at least 75 per cent., depend upon infection with streptococci, the pneumococci, or the staphylococci. The tubercle baccillus may be present and in some acute cases, as in the one referred to, very abundant in the pus. In other instances definitely proved to be tuberculous, staphylococci have been present, and sometimes the effusion is sterile. The course may be extremely suggestive, and it has long been known that the latent variety of empyema is not uncommonly tuberculous. The fluid may not be truly purulent, but the turbidity due to the presence of large quantities of fatty material.

And lastly, a great difficulty in diagnosis may exist in these cases of sero-fibrinous pleurisy which recover with thickening of the membranes and persistence of flatness at the base. The most suspicious instances are those in which the fluid constantly recurs in spite of repeated tappings, and in which, with diminution apparently in the amount of exudate, the flatness

persists, usually with transmission of the tactile fremitus, and sometimes, as time proceeds, marked flattening of the affected side. Possibly some of these cases, with flattening at the base and slight retraction, heal, and no further trouble occurs. Certainly they are not always tuberculous, such a process may follow a simple sero-fibrinous pleurisy or an empyema. Contraction and flattening at the base and slight drooping of the shoulder may persist for an indefinite number of years without leading to any more damage than perhaps a progressive bronchiectasis in the lower lobe. Clinically, these cases are not very infrequent, and though one may have a suspicion from the history, yet good health may be maintained for many years and evidence may be entirely wanting of any tuberculous process.

Treatment.—The indications are twofold: first, to limit and control the exudate and to promote its absorption. It would take me far away from the immediate subject to discuss here in full the therapeutics of pleural effusion. In the early stage it is sufficient to allay the pain, if severe, with opium, to reduce the fever if high, by sponging, and to keep the bowels freely opened. It is doubtful whether the salicylates deserve the confidence which many claim. To promote absorption various measures are advised. It is important to remember that when fluid remains in the chest it is for the very good reason that it cannot get out, owing to blocking of the lymph paths. Absorption from the pleura goes on, as has been shown experimentally, with extraordinary rapidity, chiefly, if not entirely, from the costal layer. Probably in all instances of pleurisy with effusion, do what we may, the absorption has to wait the freeing of the obstructed lymph channels. I still believe that good results are seen by putting the patient on a dry diet and giving brisk, saline cathartics. It is a rational practice, and in some instances I have seen the exudate diminish rapidly. The diuretin, when it acts, is useful in the same way. If at the end of ten days the exudate persists, and is at the level of the fourth rib in the erect posture, aspiration is advisable, and it may be repeated again in a few days if the fluid reaccumulates. So far as I know, there are no greater risks in the tuberculous than in the simple sero-fibrinous cases, and it is very important to relieve the lung early of the compression to which it is subjected by any large quantity of fluid. I think, however, the risk of the compressed lung becoming the seat of tuberculosis is not very great; more serious is the danger lest it should become bound down by such firm adhesions that it cannot expand. Gentle counter-irritation of the skin is probably beneficial in these later stages, stimulating the lymphatics of the costal pleura. In the cases of chronic sero-fibrinous effusion with thickening of the membranes the fluid reaccumulates rapidly,

and aspiration may have to be performed very many times. In these instances systematic pulmonary gymnastics should be practised. The expansive efforts of forcing water from one large Wolff's bottle to another is a good method. When the exudate is purulent the case should be transferred to the surgeon for thorough drainage.

The second indication is to improve in every way possible the general nutrition of the patient, so as to favour conditions promoting the healing of the tuberculous process. No doubt, as in pulmonary and peritoneal infection, many instances of tuberculosis of the pleura recover and leave no more damage than that associated with slight thickening of the membrane. A life in the open air, regular habits and exercise, a nutritious diet, and the use of the remedies which promote in every way digestion and the assimilation of food should be advised. And finally we may lay to heart the words of Sir Andrew Clark: "When we have a patient with basic fibrinous pleurisy, let us hold him fast, restrict his freedom and treat him carefully until every remnant of it is gone."—*Boston Medical and Surgical Journal, August* 10, 1893, *p.* 137.

29.—ON THE RELATION OF THE NOSE TO ASTHMA.

By W. Permewan, M.D., F.R.C.S., Surgeon to the Northern Dispensary, Liverpool.

[The following excerpt is taken from an interesting paper on "The Relation of the Nose to Chronic Respiratory Disease":]

There is one disease whose symptoms at least are respiratory, the practical, experimental connection of which with nasal disease is apparently no longer doubtful. That disease is asthma.

While the relation of the bronchial and the digestive mucous membranes to asthma has been long known, it is only of recent years that the nasal fossæ have been considered as of importance in this regard. In 1872, Voltolini, in his well-known work on the galvano-cautery, first enunciated the connection of asthma with nasal disease. He said, "I have found asthma so often complicated with nasal polypi that I cannot doubt that they are often a primary cause, especially as I have seen the asthmatic attacks disappear after the removal of the polypi." He is careful, however, to point out that if emphysema complicates long-continued asthma, the latter does not disappear after removal of the polypi.

Voltolini was followed by a number of other observers who arrived at the same conclusions as himself, and by Fränkel, Weber, and a host of others, who found that not only polypi but other chronic nasal conditions mostly of a hypertrophic character are connected ætiologically with asthma. In 1883-4 appeared Hack's enthusiastic work on rhinal surgery, in which he formulated his famous theory of nasal reflexes, and carried it to an extreme—viz., that the swelling, from any cause, of the turbinated bodies is very liable to produce reflex vaso-motor changes in other parts, among them the bronchial mucus membrane. Hack obtained most brilliant results by his surgical treatment of the nose in asthma. In his work on the Nose and Throat, published in 1888, Bosworth gives the results met with by him up to that time. About the same time Schmiegelow, of Copenhagen, published his monograph on asthma, from which I have taken my short history of the subject. I propose to give briefly the results of these two observers, as they are typical of a host of others, and because they are easily accessible to the criticism of anybody.

Dr. Bosworth gives the results of five years' work. In that time he treated 46 cases of real asthma. Of these, in 33 the asthmatic fit was preceded by some form of nasal disturbance, as sneezing, itching, fulness of the nose, &c. ; 13 had no nasal symptoms preceding a paroxysm. Of the 46, 13 were the subjects of hypertrophic rhinitis, 11 had nasal polypi, 11 had hypertrophic rhinitis and a deflected septum, 6 had polypi and a deflected septum, 3 had only deflection of the septum, and 2 had a combination of post-nasal growths and hypertrophic rhinitis.

Bosworth states, "I have never seen a case of asthma to occur in other than an obstructive lesion of the nose or upper air passages."

These cases were treated by the ordinary methods of nasal surgery : polypi were removed, hypertrophied parts cauterised or removed, and the result, as given by Bosworth, was :— Cured, 28 ; relieved, 12 ; unimproved, 1 ; unknown, 5 ; total, 46.

These results are, of course, highly favourable, and perhaps exceptionally so ; but they have considerable resemblance to the figures of Schmiegelow—

Of 139 cases of nasal polypus in his practice, 30 had asthma =22 per cent. Of 514 cases of chronic rhinitis, 40 or 8 per cent. had asthma.

Of 56 cases of asthma treated by surgical methods and also by general treatment—drugs—32 were cured, 11 improved, 7 gave no result whatever. Of the 32 reported as cured, 17 afterwards recurred at longer or shorter intervals, but only on the recurrence of the nasal disease, *e.g.*, polypi, and were, as regards

several of them, permanently cured by a second course of treatment. This recurrence of the symptoms on the recurrence of the nasal condition is, viewed in one light, a strong confirmation of the connection between the two.

As with Bosworth so with Schmiegelow, a very frequent prodromo of the asthmatic fit was profuse discharge of serum from the nose or other nasal symptoms, a fact pointing to the common implication of the nasal mucous membrane with that of the rest of the respiratory tract in an asthmatic paroxysm.

If certain parts of the turbinated bodies or the septum be mechanically irritated either in man or in an animal, the well-known nasal cough is easily produced. The particular parts of the nose, stimulation of which produces one or other of the respiratory effects, are the inferior and middle turbinated bones, especially at both extremities, and the hinder end of the septum.

Irritation of these regions produces, besides respiratory changes, effects on blood-pressure, vaso-motor effects. It is, of course, well known that irritation of many sensory nerves produces vaso-motor effects, but these effects are particularly well marked in the nasal irritation, and consist chiefly in a *rise* of blood pressure in the systemic vessels.

No kind of stimulus, however strong, of the nasal membrane, will produce an asthmatic paroxysm in the normal animal.

All cases of asthma are not due to the nose, or at least cannot be removed by nasal therapeutics. It becomes therefore of practical importance to know what are the cases which are likely to be relieved or cured and what are not. Schmiegelow lays down the following criteria to guide us in this discrimination. Asthma is likely to benefit (permanently) by local nasal treatment, in the following conditions :—(1) When the asthma is (temporarily) relieved by local treatment, gets worse on recurrence of the nasal disease, and is again improved by renewed local treatment ; (2) when local treatment to the nose gives instantaneous relief (of this he mentions a case of removal of a polypus giving immediate relief) ; (3) on the other hand, when local treatment aggravates for a time the asthmatic condition ; (4) when the introduction of cocain into the nostril can cut short an attack ; (5) when it is noticed that the smelling or inhalation of any particular substances can cause the paroxysm.

If any of these conditions are satisfied there is a fair chance of relief if not of cure. Local treatment, however, even then is not everything. The disease being essentially nervous, every attempt must be made to improve the tone of the nervous system by appropriate remedies, and it is only in the combination of local and general treatment that the best results can be expected.—*Liverpool Medical Chirurgical Journal, January* 1893, *p.* 71.

30.—A CASE OF PNEUMONECTOMY.

By D. Lowson, C.M., Assistant Surgeon to the Hull Royal Infirmary.

Mrs. F., aged 34, had been married thirteen years, but had no children. She had suffered for fifteen years from dyspepsia, but for twelve months had much pain over the top of the right lung striking through to the back, and had lost much flesh. She frequently perspired at night, and often found herself bathed in perspiration in the morning. She had a short cough but no hæmoptysis. The pulse was quickened, averaging 112, and the temperature in the evening was frequently 2° to 3° above normal.

There was distinct retraction below the right clavicle when compared with the left side. Dulness was also marked as far as the second space, and the voice sounds were much more loudly conducted on the affected side. The exaggeration of the vocal fremitus was very distinct when the two sides were compared. The family history was good. She herself had been a weakly girl, and had suffered from a suppurating gland on the right side of the neck. She was under observation from August 21st until February 14th, and during that time the symptoms became gradually worse. The loss of flesh was manifest to her friends, and the cough and perspirations continued to trouble her, though there was little expectoration and never any hæmoptysis.

The operation was performed on February 14th. An incision was made from mid-sternum along the course of the second rib through the pectoral muscle nearly to the edge of the anterior axillary fold. From the inner end of this I also cut for a couple of inches downwards along the middle of the sternum. The skin and muscle were then reflected from the surface of the second and third ribs, and a number of vessels spouted and were secured —mainly branches of the acromio-thoracic and intercostals. The external intercostal muscles were next separated above and below from the two ribs, and with a periosteal elevator the pleura was detached and stripped off from the inner side. With a fine saw the ribs were divided, through the cartilage internally and through the bone externally near the outer angle of the incision. Pinching up the pleura, I pushed in a trocar, the cannula of which was connected by tubing with a Junker's bottle and bellows, and air, which was passed through a hot strong solution of carbolic acid, was slowly pumped into the pleural cavity. The lung could be partially seen sinking slowly from the chest wall, but no dyspnœa or cyanosis followed. I therefore laid open the external layer of the pleura the length of the external incision, and found the lung completely collapsed and moving up and down rhythmically with the diaphragm.

There were extensive adhesions along the face of the upper lobe, which took a considerable time to tear through, but gradually, and with patience, a complete separation was affected. There remained high up two finger-like ligamentous processes attaching the apex to the summit of the extension into the neck. These were easily broken and the apex drawn out. The diseased part was seen occupying the anterior part of the apex. I had with me a large needle in handle, rounded, and without edge, and with an eye big enough to take in a large twisted silk thread, which had been boiled, and had long lain soaking in an ethereal solution of iodoform. With this needle I transfixed the lung some distance below the disease, tied firmly in two pieces after the Staffordshire method, and cut off the upper diseased portion. The portion removed was the size of half a fist, and contained a dense tuberculous mass with discrete granulations around it. Into the stump iodoform powder was rubbed, the cavity was sponged out, and the mutilated lung dropped back. In the course of the operation I had palpated the whole organ for other collections, but found nothing except soft spongy lung tissue. The ease with which a living lung can be palpated struck me. The fingers seem to almost meet, even when the thickest portions are grasped, nor do they seem so voluminous as in necropsies. I closed the external incision without draining. At no time did the respiration get troublesome, so that neither the oxygen nor electric apparatus was wanted. The patient was now put to bed and carefully watched. The evening temperature was 99° and pulse 84, respirations 36.

February 15th.—Morning temperature 99·2°, pulse 88, respiration 32; evening temperature 99·4°, pulse 88, respiration 38. For the next three days matters went on in a similar way, and all seemed going on well. On the night of the 19th (that is, fourth day), however, there was a sudden development of a limited patch of dry pleurisy on the left side (opposite) which gave her much pain, and greatly crippled the respiration, which increased in frequency to 46 per minute. The pulse also went up to 108, but the temperature stood at 99·6°. Warm fomentations and mustard applications helped her but little. Next day I gave her a morphine draught, which relieved her greatly, and the trouble gradually disappeared, and the respirations fell to 28.

The next difficulty rose at the end of the second week, when the temperature began to rise, every night going up till it reached 101·6°. At first I looked upon it as a fresh eruption of tubercle. The breathing became a little quicker (32), but the pulse was quiet (88 to 96). I found some dulness posteriorly, and, as some black blood had appeared at the outer angle of the wound on the fourth day, I came to the conclusion that there was blood in the pleura, and it was this that was causing the rise of temperature,

just as in cases of hæmatocele of the broad ligament, where we have often rise of temperature, and very high temperature, too, and yet the extravasation all melts away and is absorbed *in toto*. I therefore left it untouched, the patient declaring herself quite comfortable, and looking well and eating well. The temperature kept up until March 17th, a month after the operation, when there was a sudden discharge of a large quantity of brown-looking matter of the colour of chocolate, evidently altered blood The overflow being wiped up, I passed in an india-rubber tube and sucked out with a syringe the rest of the fluid, and dressed antiseptically as before. The temperature now dropped to normal, and respirations to 24. I was afraid the hæmothorax would now become an empyema, and this was, in fact, what happened. The brown colour gradually changed to yellow, but at the same time the quantity diminished very much, and remained perfectly sweet. At the present time the amount drawn is not quite an ounce. The patient is thin, but is taking her food well, and has been up on several occasions. The temperature has been normal for a long time, and the respirations averaged 22. On the left side only healthy signs are discoverable ; on the right side clearness posteriorly except in the upper scapular region, and in front clear below and hyper-resonant on gentle percussion over the part where the ribs were excised. Air seems to enter the lungs well in the lower parts, and ordinary respiratory sounds are also heard in the suprascapular fossa. In the subclavicular fossa are the sounds produced by the air entering the small opening in the chest wall.

It would have, I think, saved much trouble in this case if I had introduced a drainage tube for a couple of days, as is frequently done in abdominal section, but I doubted the ability of the left lung, or of one lung, to carry on the work of respiration for so long.

Had I known at first what I know now, the later troubles would, I feel sure, never have occurred, and the result would have been as favourable and as rapid as many an abdominal section.

May 2nd.—The patient has improved rapidly during the past week, both in appetite and in flesh. She is walking about the room, and is preparing to go to her own home on Thursday (4th). The discharge is very slight.

There is a large question, which I forbear to discuss—namely, whether many cases occur that are fit for pneumonectomy. I may say, however, that in the living collapsed lung it would be very easy to ligature and cut off many portions of lung, if the disease were found scattered in patches.—*British Medical Journal*, *June* 3, 1893, *p.* 1152.

DISEASES OF THE ORGANS OF DIGESTION.

31.—ON ACUTE TONSILLITIS AND ITS TREATMENT.

By Solomon Solis-Cohen, M.D., Physician to the Philadelphia Hospital.

I still believe that for therapeutic purposes the distinction between rheumatic and non-rheumatic cases [of acute tonsillitis] is most important, the former requiring constitutional treatment, the latter being often amenable to topical treatment only. True, it is not always possible to make the distinction with certainty, and even when the results of therapy seem to justify the opinion that has been formed in a given case, the rigidity of a scientific demonstration is still lacking. Nevertheless, broad indications exist, the utility of which increases with one's experience.

Excluding from consideration those cases in which obvious endocarditis or pericarditis, or articular inflammation coexists with, or precedes, or follows, the manifestations of sore-throat, there is still a large number of cases that may be considered rheumatic, and in the recognition of which assistance may be found in some of the following data:—(1) The personal or family history of the patient. Tonsillitis in one who has had rheumatism, frank or obscure, or in whose family there is a strong rheumatic or gouty tendency, is best treated as a manifestation of rheumatism. (2) A tendency to frequent recurrence of the affection. (3) The occurrence of symptoms, local or general, before any evidence of inflammation is visible upon inspection of the throat, and the tendency to partial or complete subsidence of nervous and febrile symptoms with the occurrence of local signs. (4) The coincidence with sore-throat of one or more of certain rheumatic or rheumatoid symptoms or signs, vague or pronounced, such as muscular soreness or tenderness; stiffness of the neck, or pain in swallowing, greater than can be accounted for by the visible extent of inflammation; pain in respiration or phonation (which, on laryngoscopic inspection, will usually be found to be due to involvement of the crico-arytenoid articulation or the tissues surrounding it); excessive pain in swallowing saliva, which may, indeed, be the first symptom noted, and may precede by many hours visible throat-lesion; pain in the precordium; a soft, blowing systolic apex, basic or vascular murmur, detected on careful auscultation, even in the absence of cardiac symptoms; pleural friction, which may be

slight and limited. (5) The existence of any joint symptom, especially pain on motion, or stiffness; this may even be confined to a single small articulation, such as the base of the heel, or the joints of the big or little toe—the patient sometimes comparing the pain in the heel to that produced by jumping from a height. (6) Urinalysis; excessive acidity, excess of urates, and, in rare instances, albuminuria, pointing to a rheumatic origin of the affection. (7) The occurrence of anomalous eruptions. I have seen one case in which the exanthem somewhat resembled that of measles. The patient was a girl of some sixteen years of age, who had already had measles. Sometimes the eruption is petechial; sometimes erythematous; sometimes urticarious. There may be erythema at one point, petechiæ at another. Herpetic eruptions have a different significance.

The local treatment that I now advise in rheumatic cases is the use of a gargle (not original with me) consisting of four fluid drams of the ammoniated tincture of guaiac, shaken up with two fluid drams of compound tincture of cinchona and six fluid drams of refined honey, to which are slowly added two fluid ounces of the concentrated infusion of coca, and enough water to complete the six ounces, in which are dissolved ninety grains of sodium salicylate. At intervals varying from a half-hour to two hours, a tablespoonful is used in divided portions as a gargle, and a portion of the gargle is swallowed, if deemed advisable. The same method may be employed in non-rheumatic or doubtful cases, concerning which, however, some additional remarks are to be made later. Previously to the gargling, in cases of so-called follicular tonsillitis, whether rheumatic or not, an application of a 10 per cent. solution of cocaine is made to the tonsil, and the plugs of sebum, desquamated epithelium, and bacteria removed with a scoop as far as practicable. If the inflammation is severe, or suppuration is evident, or apparently imminent, scarification or incision is practised.

In addition, heat is applied to the neck externally, and in cases attended with much infiltration of the submaxillary tissues, or with glandular involvement, inunctions of a 50 per cent. ointment of ichthyol are made.

In some cases pieces of ice allowed to melt in the mouth from time to time, and in other cases sips of hot water or hot milk, assist in the relief of pain. A useful expedient to mitigate odynphagia is, at the moment of glutition, to pull downward the lobe of the ear on the affected side; this diminishes the tension of the parts caused by the increase in size of the swollen tonsil.

In rheumatic cases, however, local treatment is of less importance than constitutional treatment; especially if the patient be seen early. In my former communication the use of sodium salicylate was advised. It constitutes good treatment and is usually efficacious. Since salol was introduced, however, I have fallen into the habit of prescribing it in preference to the sodium salt, as it is less likely to be objected to, or to derange digestion. To an adult five grains of salol are given in powder every second hour, until tinnitus is produced, or thirty grains (the daily maximum) are taken, unless it should cause suppression of urine or symptoms of vesical or renal irritation, or the urine should become discoloured. In the presence of any of these symptoms of carbolic-acid poisoning the salol is withheld, and sodium salicylate, oil of gaultheria, or cinchonidine salicylate is substituted.

In the treatment of anæmic patients, and more especially of those who are subject to frequently-recurring attacks of articular rheumatism or of tonsillitis, the mixture of tincture of iron chloride and sodium salicylate is employed in preference. Of this two fluid drams (representing fifteen minims of the iron-tincture and fifteen grains of the salicylate) are given in water every second hour until tinnitus is caused or relief is experienced, or until six doses have been taken, when it is intermitted or discontinued for the day. After one, two, or three days of treatment with salol or sodium salicylate or the combination of the latter with iron, cinchonidine salicylate in doses of five grains every second, third, or fourth hour is substituted and continued throughout convalescence. Often the last-named drug is given in doses of five grains, night and morning, for two or three weeks after recovery.

Patients not specially anæmic, but subject to frequent recurrences of sore-throat, are treated with cinchonidine salicylate from the outset. In every case a full dose of some saline cathartic, usually Rochelle salts, is given previously to the administration of the specific remedy, and throughout the case the bowels are kept freely open, by drugs if necessary. A milk-diet is preferable; indeed the patient is rarely able to swallow solids.

In non-rheumatic cases, whether folliculous or herpetic, I am now accustomed to alternate the guaiac gargle, made with potassium chlorate or sodium salicylate or sodium borate, rarely sodium bicarbonate, with a spray or a gargle of a five-volume solution of hydrogen dioxide, sometimes rendered alkaline with sodium borate or bicarbonate. When there is much pain, the addition of cocaine (about 2 per cent.) to the spray is often quite grateful. When cocaine is used, however, the sodium salts are omitted; else the insoluble cocaine borate or cocaine

carbonate would be formed. In the case of children who cannot gargle (though it is surprising how soon the little ones learn), it is directed that a little of the guaiac-mixture be swallowed slowly at such intervals as are practicable or judicious, and dependence is placed chiefly on sprays of the solution of hydrogen dioxide. As sore-throat of any description predisposes to diphtheric infection, a sponge on which, from time to time, a few drops of eucalyptol are placed is suspended from a tape loosely tied about the neck of the child.

Unless idiosyncrasy counter-indicate, calomel is usually given internally in small or moderate doses, continued for about twelve hours; to a child of three or four years, one-eighth or one-quarter grain every second hour; to an adult two grains every fourth hour. This is of less importance, however, than the local treatment.

In cases of parenchymatous tonsillitis and peritonsillar abscess, scarification and incision are, of course, demanded.

Special reference should be made to the tonsillitis of influenza. It was not uncommon in Philadelphia, even prior to 1889, to see cases of catarrhal fever in which the earliest manifestations were inflammation of the tonsil and neighbouring structures. These cases usually did best when treated with cinchonidine salicylate. During the pandemic of 1889 and since, the special form of sore-throat described by Glasgow and by Seiler was quite common. In this the tonsil became swollen and red, sometimes covered with a grayish or pearlish exudation, often pellicular; and usually the palate and uvula were swollen and œdematous-looking. The apparent œdema, however, was of a peculiar type, puncture giving exit not to serum, but to a viscid lympth-like fluid, which formed long, coherent threads. Some of these cases are mistaken for diphtheria, and so reported. Constitutional treatment, especially the free use of sodium benzoate, is more useful than topical measures. Of the latter, a spray of the solution of hydrogen dioxide and cocaine, and inunctions of ichthyol seem most efficacious.

Herpetic tonsillitis derives a special importance from its liability to be mistaken for diphtheria. It is but rarely seen in the papular or vesicular stage, and when the vesicles have ruptured and the little ulcerations thus formed are covered with exudate the discrimination is often difficult and sometimes impossible. When the diagnosis has been made, palliative treatment only is necessary, the disease invariably tending to recovery. In cases of doubt the patient should be isolated and treated as for diphtheria.

In the diagnosis of herpetic tonsillitis, the coincidence of herpes labialis is considered an evidence of some value, though not pathognomonic.—*Medical News, April* 29, 1893, *p.* 461.

32.—THE DIAGNOSTIC VALUE OF THE ABSENCE OF FREE HYDROCHLORIC ACID FROM THE GASTRIC JUICE.

By H. L. Elsner, M.D., Professor of Medicine in Syracuse Medical College, New York.

[The following excerpt is taken from a valuable paper on "The Practical Value of the Newer Methods of Examination in the Diseases of the Stomach":]

Within the past few years the diagnostic value which had been accorded to the absence of free HCl from the stomach during the height of digestion has been materially modified, and we are daily leaning more toward the conclusion that it points more directly to a disturbed function and less to any one diseased condition of the stomach.

The diagnostic value of the absence or diminution of free HCl in the stomach secretion, associated more particularly with pyloric cancer and ultimate dilatation, was first systematically investigated by R. von den Velden at the clinic of Kussmaul in Strasburg.

It seems strange that the knowledge of this fact, which was given to the profession as long ago as 1842 by Golding Bird (53), did not lead to its application for diagnostic purposes. Bird's patient was a man aged 42, with pyloric cancer and dilatation, the diagnosis was verified by autopsy. Bird made three chemical analyses in about three weeks, and concluded that "during the more irritative stage of the disease free HCl is present in the vomit in considerable quantities; but it gradually diminishes in proportion to the patient's loss of strength, and the organic acids increase proportionally as the free HCl diminishes."

It has been held that the absence or diminution of HCl from the gastric secretion is an almost constant attendant of all forms of cancers, regardless of their location or histological structure. That this is not true I am able to state positively as the result of experimentation during the past two years in eight cases of cancer—three uterine, two omental, with ultimate secondary nodules in the liver, two recurring cancers of the breast, and one medullary cancer probably of the right kidney after removal of the right testicle for the same disease about one year previous. In all of these eight cases Leube-Riegel test meals were given and repeated chemical examinations were made with positive results. HCl was present, both combined and free, in over 90 per cent. of the tests. In the case of cancer of the right kidney HCl was absent at times, owing to the

regurgitation into the stomach of the bile, due to extra-intestinal pressure and constriction.

In conjunction with the study of the importance of free HCl as a diagnostic sign, we must remember that in not a few cases a feeble digestive process has progressed without the characteristic colour reaction at the height of digestion. It must not be taken for granted that digestion begins at the moment when the secretion is expected to react to these tests; but let the clinician note that at that time a large part of the stomach work has been done and digestion is almost ended (Martius (54)). "Free HCl" might then more properly be spoken of as "surplus HCl." It is, in fact, the remnant left after all affinities have been satisfied.

Cancer of the Stomach.—The pathological condition with which absence or diminution of HCl has been most frequently associated by clinicians is cancer of the stomach.

The positive statement is made by Riegel (after emphasising the fact that our examinations must be oft-repeated and made with accuracy and reliable reagents before formulating conclusions) "that the constant presence in a gastric juice of free HCl and a normal peptic strength allows the exclusion of cancer of the stomach with certainty, regardless of the other symptoms, however strongly they point to that disorder."

If we accept the statement of Riegel, we are forced to determine the factor which causes the changed secretion and functional inactivity. That there is nothing in the cancer *per se* to check the HCl secretion is shown by innumerable cases of cancerous diseases of other organs, in which free HCl is almost always present in the gastric juice. It has been the experience of others that in a few cases of cancer of the stomach free HCl continues in the gastric secretion, and within the past three years the writer has had a similar experience in two cases in which free HCl could always be demonstrated at the height of digestion. In all of these cases there has been a functionally active gastric juice. In both of my cases the autopsies revealed the presence of cancer of the stomach, but without the usual accompaniment of far-reaching atrophy or degeneration of the gastric follicles. The writer has notes of an autopsy made during the winter of 1890 in a case of pneumonia ending in three days where the patient was also in the early stages of cancer of the stomach. In this case there was always presence of free HCl. The post-mortem showed a small scirrhous nodule at the pylorus; the mucous membrane of the stomach was but little changed; the microscope gave evidences of unchanged peptic glands.

Without dilating too long on the causes of anacidity in cancer of the stomach, it may be assumed with great certainty that the

prime factor in its causation is the infiltrating character of carcinoma, involving the glandular elements of the stomach in a process of atrophy with more or less additional gastritis.

Jaworski and Gluczinski held that in cancer of the stomach there was no free HCl, little pepsin, and no peptones. Their study of the subject seemed to them sufficient to justify the conclusion that with free HCl and normal digestive faculty carcinoma should be excluded. To this view Ewald also subscribes. How contradictory are the statements of Cahn and v. Mering, who conclude that "with cancer of the pylorus the presence of HCl is the rule, its absence the exception"!

The largest number of examinations have been made by Riegel, who reports 274 analyses in 13 cases. Free HCl was never detected. He (Riegel) reported three cases of cancer of the stomach in which a feeble HCl reaction took place early in the disease.

Rosenheim reports 16 cases, in 14 of which there was an absence of free HCl; in the other two there was a transitory presence of free HCl and hyperacidity respectively.

Kinnicut reports 8 cases with 132 analyses. Free HCl was demonstrable only in two cases, in one of which a trace was detected in 2 examinations out of 12; in the second a feeble HCl reaction was once obtained.

In 10 cases under my own observation with 120 tests, free HCl was absent in 92·7 per cent. of the tests, and present as a rule feebly, in 7·3 per cent.

Thiersch, in an interesting article on "The Presence of Free HCl in the Gastric Juice in Beginning Cancer of the Stomach," reports a case in which HCl was present, and Krause has established beyond doubt the fact that HCl may persist in cases of ulcerating carcinomata of the pylorus. A continuous absence of HCl is found in all cases in which there is atrophy or amyloid degeneration of the mucous membrane of the stomach accompanying cancer (Levy, Edinger).

In considering the diagnosis of gastric cancer from the cehmical analysis of the stomach contents, it must be remembreed that in most forms of gastritis (Boas, Jaworski) HCl is reduced (from 0·22 per cent., 0·28 per cent., to 0·1217 per cent.).

Boas has found that in marasmus, Riegel (69) in fever, Honigman in regurgitated bile free HCl is absent, and Grundzach (70) has shown that in perfectly healthy individuals with normal digestion there may be a transitory deficiency of free HCl.

With such data before us no one will assert that we are justified in diagnosticating cancer of the stomach from the absence or presence of free HCl alone, while in the majority of cases of cancer of the stomach, as shown by the results of the

tests made by Riegel, Rosenheim, Kinnicut, and myself, absence of HCl has been demonstrated; "the diagnostic value of this circumstance is materially lessened by the occurrence of this same deficiency in other diseases with similar symptoms." Ewald concludes: "But granting this, the proposition which I was the first to announce is still true that the demonstration of the presence of HCl points with very great probability against the existence of cancer of the stomach, for the cases of this disease in which there is a positive reaction to the carefully applied tests are so rare that they have very little bearing on the question."—*New York Medical Journal, May* 6, 1893, *p.* 490.

33.—OBSERVATIONS UPON DISEASE OF THE APPENDIX VERMIFORMIS.

By J. O. Affleck, M.D., Physician to the Royal Infirmary, Edinburgh.

Inflammation of its substance, with all that may follow thereon, is the disease to which the appendix vermiformis is specially liable, but many things in the etiology of this lesion remain unexplained. It is four times more common in males than in females, and the vast majority of the cases occur in early life, the number being nearly equal in the decades 10–20 and 20–30. Before ten it is not so common, although frequently enough seen; and, on the other hand, in late life it is exceedingly rare. Both of these facts (as to age and sex) seem somewhat against the view that mere feculent impaction of the cæcum—which is not very usual in these circumstances—plays any necessary part in the development of the disease, and rather suggest the possibility of some favouring anatomical condition of this structure existing in early life, which lessens as age advances, affecting the appendix, its canal, or its attachment. On the other hand, it is to be remembered that by far the greater proportion of concretions which are found in the appendix are fæcal in character, so that their presence requires to be accounted for.

It would seem that the appendix may simply be enlarged and inflamed as the result of a catarrhal process, either extending from the cæcum, or it may be set up by the presence of a concretion. Along with this there may be some amount of peritonitis affecting the appendix itself, the cæcum, and the surrounding intestines; or it may be a cellulitis in the subperitoneal cellular tissue, forming the hard swelling so frequently

met with. But, again, the changes in the appendix may be of more serious character, in the form of adhesions, torsions, suppuration, ulceration, perforation, and even gangrene. In such instances, not only is there surrounding localised peritonitis, but not infrequently a collection of pus, which may be walled in by adhesions, and find its way either internally into a viscus or externally on the surface ; or, again, may burst through its boundaries into the general peritoneal cavity.

M. Talamon contends that the disease of the appendix and its results—peritonitis, abscess, perforation, &c.—are in all but the most exceptional instances produced by small fæcal masses or scybala, which, finding their way into the canal, set up irritation in the milder cases, or, as in the severe cases, exercise such an amount of compression as seriously to interfere with the circulation in its walls, leading to ulceration or gangrene.

While there is much plausibility in this theory, and although the presence of fæcal concretions is made out in a large number of cases in which, to all appearance, they have been the direct agents in producing the lesion in the appendix, it cannot be accepted as universally applicable in view of ascertained facts. Thus, of 146 cases in adults recorded by Matterstock, in only 63 were fæcal concretions met with, and foreign bodies in 9 ; while in the remainder—that is, one-half—nothing of this nature was found. In 49 cases occurring among children, fæcal concretions were present in 27, and foreign bodies in 3. A considerable burden of proof, therefore, must rest upon those who hold exclusively this mechanical theory.

Torsion of the appendix has been dwelt upon by some authorities, notably by Mr. Treves, as explaining the morbid changes. In none of my cases in which operations were performed could I say that torsion of the appendix existed to any marked degree, although in one the extreme acuteness of the symptoms was reconcilable with such a condition, which might later on have undergone relaxation.

Ulcers, which are sometimes found apart from concretions or torsions, may be tubercular or—especially those close to the junction of cæcum and appendix—stercoral in origin. I have not seen any instance of typhoid ulcers there, although they have been described. Foreign bodies are certainly rare.

Upon the whole the probability seems to be that appendix disease may result from various causes, some more apparent than others, and that this small body possesses a vulnerability peculiarly its own. Ulcers here appear, more than in any other part of the intestinal canal, to tend to perforation—a proof itself of low vitality of texture—although, no doubt, their course is often arrested by adhesive inflammation outside the peritoneum.

The milder and more common cases of appendicitis do not, as a rule, present any serious difficulty in diagnosis, since the age of the patient, the clinical history, the tumour in the right iliac fossa, and its course and disappearance, leave little room for doubt. It is otherwise, however, when, from the symptoms, the question is raised whether or not an abscess exists, and the need arises for surgical interference; so likewise in the very acute cases. As regards the point as to the diagnosis of the presence of pus, it must be confessed that we have no certain indication. But some considerations are helpful. If, for instance, after the cessation of the acute symptoms in an ordinary case, and the recognition of the usual tumour, there is a revival of the local pain, an increase of temperature, especially with rigour, and a quickening of pulse, careful manipulation, both *per rectum* and externally, may prove the presence of fluctuation, but often enough the result is negative; and all authorities admit the possibility of the presence of pus with few or no symptoms.

Again, diagnostic difficulties are presented by cases where, with the evidence of previous perfect health, alarming symptoms suddenly arise. If, as is often the case, constipation is a prominent accompaniment, one might readily think of sudden internal strangulation or obstruction of some sort. And even where the symptoms seem to indicate a perforative peritonitis, it by no means follows, even in the case of young male subjects, that it is intestinal and not gastric. I have seen such symptoms occur from a perforating gastric ulcer in a young man of 21. At the same time, there is one general rule I have deduced from my observations on the disease now under consideration which I would venture to commend especially to my younger brethren, and it is this—that when in a young person, especially of the male sex, symptoms of acute peritonitis arise, one of the most prominent considerations should be the probability of its being due to an appendicitis. In the case of children the diagnosis has sometimes to be made between appendix disease and tubercular peritonitis, and it is by no means always easy; for in the latter, as I have frequently found, the symptoms are sometimes developed with singular suddenness, and physical examination of the abdomen may show a state of things hardly distinguishable from that met with in appendicitis.

Still another diagnostic point worthy of notice in relation to the relapsing form of appendicitis is the recognition of the enlarged and inflamed body, which many writers affirm they can make out by palpation. I do not doubt that in a considerable number of instances, and by very experienced hands, this may be done, but it would be a mistake to suppose that the elongated swelling in such instances is always the appendix.

In dealing with any form of appendicitis a rectal examination ought to be made, and will be found in many otherwise doubtful cases to assist in establishing a diagnosis. Search for pus by exploratory puncture is generally and properly condemned.

Treatment can only be referred to in a very general way from the physician's point of view. Prophylaxis in the form of diet, regulation of the bowels, &c., is highly necessary in any case where there may previously have been symptoms of the disease. The most important questions relate to surgical treatment, which, however, has to enter largely into the physician's consideration in dealing with certain forms of this malady, happily the rarer forms. For it is ever to be remembered that the great majority of cases of appendicitis recover with the very simple treatment of rest, opium, light diet, &c., being, as they presumably are, cases of moderate inflammation of the appendix with localised peritonitis.

The difficult problems of treatment arise in connection with cases which there may be reason to fear are taking an unfavourable course, and obviously much must depend upon careful observation and appreciation of symptoms and accurate diagnosis. It is just here the difficulty arises, for it is certain that there may sometimes be an absence of relation between the symptoms and the actual lesions, and accordingly the danger exists of the suggestion of procedure, which may prove too precipitate action in one case, and again may be fatal delay in another.

Attempts have been made to lay down rules as to interference in cases where suppuration is diagnosed, as to the time which should elapse before anything is done, the manner of operation, and so forth, but no such rules could be absolutely relied on for general application. My own experience has taught me that each case has features attaching to it which must receive consideration apart from any general rule, and that the state of the patient largely enters into the procedure to be pursued. I feel sure that those who have had most to do with such cases will be the least rash to resort to measures which involve serious risk to life, and will endeavour to discriminate the cases which should be left alone from those which should be promptly dealt with. It is, no doubt, true that where abscess formation has occurred spontaneous recovery may take place—some say by the pus being absorbed, but certainly much oftener by its being discharged externally or into a viscus. Yet few would trust to a favourable chance of this kind, and the rule is as safe as any rule of the kind can be, that where pus exists in the neighbourhood of the appendix it should be evacuated as soon as possible. Danger is present while it remains; but the difficulty, as already stated, is to be sure that it is there. Nevertheless the risk should be undertaken when a careful consideration of all the

evidence results in a strong suspicion that pus is present. An incision over the tumour and into the peritoneum is the procedure most likely to lead straightest to the seat of the collection, in or near which the diseased appendix may be found and dealt with.

Those cases where, with alarmingly acute symptoms, evidence of general peritonitis exists demand prompt surgical treatment as the only possible resort.

In the relapsing form of appendicitis, after palliative measures have failed to remove the swelling, the question of operative treatment arises. In two cases such treatment was undertaken in consequence of the patients being completely disabled and their health steadily undermined by the recurring attacks. This is an important factor in connection with operative interference. I would venture, however, to express a doubt whether, when such an operation is undertaken, and there are found to be, as in one of the two cases, adhesions of a formidable character requiring lengthened manipulation, and, it may be, laceration of the peritoneum, it might not, after all, be advisable to desist.

But in this whole subject of appendix disease the surgeon and the physician occupy common ground (although different areas of it). It is much to be desired that the surgeon should, when sent for, avoid the merely surgical attitude, and place himself in line with the physician in deliberating upon the grave problems in the given case, remembering, as Talamon puts it, that "it is less to his bistoury than to his judgment that we make appeal." But, while this is true, it is equally important that the physician should let his mind enter into the surgeon's sphere, and endeavour to make himself acquainted with the nature, extent, and possible difficulties of operative procedure in this important region of the body. It is only thus that he can justifiably take upon himself the responsibility—for it often rests with him as regards the final decision—of advising a measure of treatment fraught with momentous interest to a human life.—*Edinburgh Medical Journal*, *August*, 1893, *p.* 99.

34.—ON TUBERCULOUS PERITONITIS.

By Frederick Taylor, M.D., F.R.C.P., Physician to Guy's Hospital.

It is generally admitted that tuberculous peritonitis may occur in two forms, so far as the clinical results are concerned: (1) In the one the peritoneal surface is covered with miliary tubercles, and a quantity of serum is secreted so as to constitute a real

ascites. (2) In the other the tuberculous process results in the matting together and adhesion of the coils of intestine, associated with enlargement of mesenteric glands, and possibly the formation of abscesses, tuberculous ulceration of the bowel and perforation of the ulcers, so that adjacent coils of the intestine communicate with one another. The result of this combined matting, adhesion, and glandular enlargement is the formation of a more or less definite tumour, which can be felt to occupy a certain portion of the abdomen. As is well known also, the omentum may be infiltrated with tuberculous and inflammatory products so as to form a band lying transversely across the abdomen at its upper part, and a similar infiltration may affect the connective tissue about the remains of the urachus and the obliterated hypogastric vessels. The tumours formed by matting are often well defined, in other cases decidedly obscure, in others again well defined one day and indistinct another ; this varying condition, as pointed out by Drs. Goodhart and Carpenter, must depend some time on the varying amounts of air in the intestines in or around the matted portions, and naturally this circumstance would be more likely to affect a tumour of small extent than one much larger.

The tumour of tuberculous peritonitis in a large number of cases occupies the lower part of the abdomen, corresponding to the hypogastric, and the two iliac regions, running up on one or other side into the lateral region, or, it may be, extensive enough to fill up the lower half of the abdomen as high as, or even beyond the umbilicus. Undoubtedly in most of these cases ascites is not present. As already stated, this mass may prevent collections of pus and abscesses in its interior, and this occurs in the most severe, where the matting is considerable. Possibly the abscesses are the results sometimes of the breaking down of caseous glands in the centre of the mass, though there seems no reason why they should not arise from tubercle deposit apart from the mesenteric glands.

But there is a class of case in which large abdominal abscesses form, or in which large collections of pus occur, so as to occupy the greater part or the whole of the surface of the abdomen, and it is a question whether these are always in children of a tuberculous character. While unable on the present occasion to supply evidence bearing in one or other direction, it seems to me, from the analogy of the suppurative process in other serous membranes and in the structures of the body generally, to be extremely unlikely that the formation of pus in this way should be either invariably due to tubercle, or constantly independent of it.

There are one or two other points of interest in regard to the associations of tuberculous peritonitis. One is the occasional

implication of the genital organs at the same time. The vesiculæ seminales may be thus involved, or the epididymis and testis. In either case the lesion may be valuable as a strong confimation of the diagnosis; and, in the first case, this is an additional advantage of that examination of the rectum which is advocated by Drs. Goodhart and Carpenter in the paper alluded to. I had a case of the kind at the Evelina Hospital a few years ago, in which by examining *per rectum* I could feel a very distinct enlargement and thickening of the vesiculæ seminales, somewhat more decided upon one side than the other. In another case to which I shall refer again presently, one testis has been and is the seat of tuberculous deposit.

Another occasional feature in tuberculosis of the abdomen is the occurrence of œdema of the lower extremities, or even of the whole body. In late stages this can be explained by cardiac failure, but one sees it sometimes, at any rate in its partial form, when the abdominal disease seems to be yet in a comparatively early stage. Some interference with the return of venous blood, either by the pressure of tuberculous masses, or by thrombosis, secondary to pressure or tuberculous invasion, may be the cause of this. I remember a case in which there was local œdema of the scrotum, and I think I am right in saying this was the case in which the vesiculæ seminales were diseased.

I need do no more than allude to the fact that tuberculous peritonitis in children is often, is indeed in the majority of cases, independent of phthisis in the ordinary sense of the term. It is true that in many cases tuberculous deposit is found in the lungs after death, but this deposit is mostly one of miliary tubercle, and is no doubt part of a general tuberculosis, with which the case has terminated. But phthisis proper, that is, consolidation and excavation of the lung as distinguished from mere miliary deposit, is comparatively rarely present.

We know well that for many years the treatment of tuberculous peritonitis has been anything but heroic, and yet the disease has been by no means universally fatal; indeed, one would say that amongst tuberculous affections that are classed under medical ailments, tuberculous peritonitis is the most favourable, and the most likely to terminate in practical cure or recovery. Incidentally one may remark here that our more comprehensive knowledge of the diseases formerly known as tuberculous, strumous, and scrofulous, by which we are enabled to declare that they are one and all due to tubercle and the tubercle bacillus, should very much increase our belief in the possibility of improvement or even recovery when the tuberculous lesion is seated in the most unfavourable locality. The diseases of joints and enlargements of glands attributed to tubercle often get well, peritoneal tubercle in some way subsides,

the incurability of phthisis is only a relative term, and even recovery from tuberculous meningitis is allowed by all to be conceivable, and probably occasionally occurs. In all these cases the tuberculous process is stayed, and if the tissue is destroyed or damaged, at least the patient lives.

The treatment then of tuberculous peritonitis—the medicinal treatment—that I have pursued in accordance with teaching I received long ago, has been the inunction of the abdomen with mercurial ointment, either the unguentum hydrargyri compositum of the *Pharmacopœia*, or a 2½ or 5 per cent. oleate of mercury, and the internal administration of cod-liver oil. The patient is kept at rest, and fed with as good and nourishing food as he will take. Henoch, whom we may take as the great German authority on the diseases of children, does not speak at all hopefully as to the prognosis in tuberculous peritonitis. He uses, it appears, wet compresses for many weeks, salt water baths, and painting of the abdomen with tincture of iodine, and iodoform collodion ; internally he employs cod-liver oil and the iodides of iron and potassium. He is so little sanguine that the few cases of chronic peritonitis he has seen recover under this treatment he believes were simple and not tuberculous. No doubt this is a very real difficulty sometimes and it is quite conceivable that some cases are to be so explained ; but, on the other hand (1) the question has to be answered, What is the nature of these cases of chronic peritonitis which are not tuberculous? (2) Recent operations on the abdomen show the frequency of the presence of tubercle, and, apparently, its total subsidence. (3) I can supply one case in which chronic peritonitis, associated with tuberculous disease of the testis, has practically recovered while the testis remains affected.

Recently large numbers of cases of tuberculous peritonitis have been treated by the operation of laparotomy. The abdomen has been incised, fluid has been removed from the peritoneal cavity, and that cavity has been drained, or, in some cases, has been simply cured without drainage ; and this is the treatment that I feel my surgical colleagues are more competent to discuss than I am. So long ago as 1890, 71 cases of this operation were recorded, of which it was stated that 83 per cent. were successful. Half of them were well one year afterwards. In many dying of other tuberculous affections the peritoneal lesions were found completely cured.

In 130 cases of abdominal section, referred to in 1891, it was stated that the death-rate from the operation was 3 per cent. Of the whole number of cases, 70 per cent. were over 20 years of age, so that the proportion of children must have been small, but this need not much affect the value of the observations ; 107 cases were discharged in a more or less satisfactory condition,

23 improved, 84 cured, for the time at least; 30 patients remained apparently cured after two years, that is 24 per cent. These include Sir Spencer Wells's well-known case, and others having a duration of from six to fifteen years from the time of the operation. Those who died in spite of the operation died of the results of tuberculous peritonitis, of general tuberculosis, or of pulmonary tuberculosis. The cured cases presented all forms of tuberculous peritonitis—solid, fluid, and suppurative.

If these figures really represent cases, all of which were tuberculous, while the survivors were restored to health, that is, if the interval elapsed since the operation is sufficient to justify the view that the patients have recovered and the tubercle is obsolete or cured, then it is a method of treatment which deserves to be widely adopted.

Without discussing the subject at all fully, I may, perhaps, be allowed to give expression to the thoughts one naturally entertains when one hears of those successful results: 1. The operation seems to be more applicable to cases of tuberculous ascites than to cases of matting and adhesion; and the proportion of this latter class of case is in my experience much greater, so that the operation would seem to be applicable to only a limited number of cases. 2. The explanation of the result is surely difficult to see. It has been said the fluid is a cultivating medium for the bacilli, and removal acts by, so to say, starving the bacilli, and thus leading to the subsidence of the tubercles. The cases recorded, in which tubercles were seen at the time of the operation, and after an interval the peritoneum was inspected and no tubercles were found, are of great interest and importance. The late Dr. Hadden mentioned a case in which the interval between the recognition of the tubercles and the discovery that they had gone was only two months. But if it is the removal of the fluid which is essential, why is not paracentesis sufficient? Continued drainage is deprecated by some. Where, then, is the magic of incision? To one writer, feeling the difficulty of the situation, it appears to have suggested itself that light had something to do with it; so he made the incision and exposed his patient's wound to sunlight for ten minutes, with the result that twenty-three days after the fluid had not returned. This record is scarcely convincing. If cure is simply the result of letting off the fluid we might hope for similar results in tuberculous pleurisy; but that is not generally looked upon as very amenable to treatment. On the other hand, it is, of course, possible that some of the pleural effusions we cure by paracentesis are of this nature. 3. If it is granted that tuberculous peritonitis will recover without surgical assistance, it must be allowed that some cases that have been operated upon would have got well by themselves, perhaps many. And in addition

to the case already mentioned I can tell of another which came under my care, in which there were all the signs of tuberculous peritonitis, with matting of the bowel, so as to produce a resisting mass which occupied a large area.

I can further refer to five other cases under my care, in 1887 and 1888, which were diagnosed as tuberculous peritonitis, and in which the children left the hospital apparently cured. My effort to trace these children have been so far unsuccessful, and they cannot, of course, be looked upon as unequivocal cases of spontaneous cure, or cured by medical means. They are, however, quite enough to show that cases apparently tuberculous do not necessarily go a steadily downward course, and enough to raise the question whether the operative treatment is one that is called for universally in cases of tuberculous peritonitis.—*British Medical Journal, September* 30, 1893, *p.* 736.

35.—A CASE OF PANCREATIC HEMORRHAGE AND FAT NECROSIS, WITH A CONSIDERATION OF ACUTE INFLAMMATION OF THE PANCREAS.

By Herbert P. Hawkins, M.B., M.R.C.P., Assistant Physician to St. Thomas's Hospital.

There is scarcely any organ so little liable to disease as the pancreas. It is occasionally the seat of a pyæmic abscess and of a new growth ; its duct may be blocked by a calculus ; a cyst may develop in its substance ; and it has been clearly established that some cases of diabetes are dependent upon morbid changes in its structure. These conditions are either of secondary importance or of a very chronic nature. Very different from them in course and result are the two conditions of (1) hemorrhage into its interstitial tissue, and (2) acute inflammation of the gland. The first of these is thought to be invariably fatal, death sometimes occurring in thirty minutes, at other times being delayed for thirty-six hours. The second is less acute, but almost equally fatal ; it usually kills the patient in less than a week, and death is, perhaps, more distressing than in disease of any other abdominal organ. As regards hemorrhage into the pancreas, recorded cases have been accumulating in the last few years, though they have not attracted much attention in this country. More exact observation, however, is needed before the causation of the occurrence can be understood. The following case is a good example.

A man aged forty was admitted on November 20th, 1892, under the care of Dr. Harley. On November 18th he had some slight intestinal trouble, and consequently took two liver pills of unknown nature. The next morning his bowels acted several times ; he was sick after breakfast, and was then seized with a most acute pain in the abdomen. On November 20th he was admitted into hospital. He was then pale, cold, and collapsed, with a temperature of 96·4°. He was suffering from severe pain across the middle of the abdomen, and at a corresponding point in the back, and was very thirsty and restless. The abdomen was somewhat distended, but showed nothing abnormal beyond some tenderness over the situation of the kidneys. There was no sign of disease in the chest. His urine was of a dark colour, and contained one-twelfth albumen, but no blood. In the course of the next day, the 21st, he passed seven stools containing a little mucus and blood. His great distress was somewhat relieved by a warm bath and hot fomentations to the abdomen, but there was no real improvement. The pain and collapse continued, and in the evening he was found dead in bed, nothing special having called the nurse's attention to him. The whole illness had lasted sixty hours. At the post-mortem examination the body was found to be strongly built and well nourished, containing rather more than a moderate amount of fat. On opening the abdomen the first impression was that rupture of an aneurism had occurred. The peritoneal cavity contained about a pint of bloody fluid, and a mass could be felt in the middle line seated on the upper part of the abdominal aorta. This mass, however, proved to be the pancreas. It was six inches long, greatly increased in bulk, and it weighed rather more than twelve ounces. At the head of the gland its structure could not be recognised ; it was black with infiltrated blood. This condition became less intense towards the tail, though the whole gland was affected, and at the part where the change was least marked it could be seen that the interlobular septa were infiltrated with blood, and the gland tissue was of a dirty brown colour. There was very extensive hemorrhage under the peritoneum, limited to the posterior half of the abdomen. There was fluid blood around each kidney and on the front of each psoas, but the greatest amount of extravasation had occurred around the pancreas, which was embedded in clot and fluid blood, and it was clear that the whole of the retro-peritoneal blood had travelled from a spot in the head of the pancreas. The liver was somewhat fatty, and the kidneys were unduly full of blood. There was no disease of the stomach or intestines. All the large arteries and veins of the abdomen were opened up without any sign of disease being discovered ; but the vessels belonging to the portal system were unusually

full of blood. The condition of the solar plexus was not ascertained. The omentum, the subperitoneal fat of the abdominal wall, the perinephric fat, and more especially the pancreatic fat (where it was not obscured by the hemorrhage), showed a thick sprinkling of specks and nodules of dead-white material, the condition being that which was described by Balser as fat necrosis. The largest of these nodules were rather larger than mustard seeds, and they had the shape and arrangement of the normal fat lobules surrounding them. The appendices epiploicæ were not affected, and there was no visible change in any fat other than that in immediate connection with the peritoneum. The heart weighed fifteen ounces, and showed some hypertrophy of the left ventricle, and there was some thickening of the mitral valve without incompetence. There was a moderate amount of atheroma in the arch of the aorta.

The diagnosis of such cases as this is important, not from any hope of successful treatment, but from their close resemblance to acute peritonitis and intestinal obstruction; it is important also from a medico-legal aspect. This sudden fatal hemorrhage into the pancreas—"apoplexia abdominalis pancreatica"—was recognised by Friedrich in 1875. He mentions the three cases reported by Zenker, as to which there can be no doubt, and quotes Klebs' belief in its occurrence. Numerous instances have been subsequently recorded, which place it among the recognised causes of sudden death in apparently healthy individuals. A full account is given by Prince, and five typical cases are clearly recorded by Draper. Finally, in the admirable monograph by Fitz on the subject of acute pancreatic disease, may be found a complete description of this affection, drawn largely from his own experience. He says that the attack usually occurs suddenly in male adults, seldom under the age of forty-five, who are apparently in good health at the time, but who have been more or less intemperate. The onset is marked by severe pain in the abdomen or lower part of the chest, and there may be nausea or vomiting, a desire to defecate, or the passage of frequent stools, with intense thirst and restlessness. The most constant feature, however, is the rapid and hopeless collapse, which is present almost from the first, and death may take place in thirty minutes, or may be delayed for thirty-six hours. The suddenness of death is most striking. The course of the illness may be gathered from the expressions found in the table of cases given by Fitz, such as "found dead in bed," "found dead in a chair as if asleep," "died suddenly whilst talking to a companion." The explanation of this rapid collapse and death which was suggested by Friedrich seems probable enough. The pancreas is possibly possessed of functions which are not well known, but it probably has no function the abolition

of which could lead to death in half-an-hour. Nor can death be attributed to mere loss of blood. It must be ascribed to the sudden pressure exercised by the swollen organ on the solar plexuses and the semilunar ganglia with which the pancreas is in immediate relation. The actual cause of the hemorrhage is still unknown, but I doubt whether in any case of the kind the intra-pancreatic vessels have ever been thoroughly examined. The suddenness of the onset, and the fact that death may occur in such a short space of time, may be taken as strong evidence that the blood is shed from a large artery in the substance of the pancreas. Moreover, the post-mortem appearances in all cases seem to show that the bleeding occurs at some one spot, and that the blood travels thence through the loose interstitial tissue of the organ, in most cases forcing its way also into the general retro-peritoneal connective tissue, with which the interstitial tissue of the pancreas is continuous. It is a condition of great rarity, and nothing like it occurs in any other abdominal organ. It has, however, certain points of resemblance to cerebral hemorrhage in the laxness of the tissue in which the arteries are embedded, and in the age and class of the patient in whom it occurs.

The microscopical characters of the pancreas in this case are interesting as bearing on the nature of that condition which has been described as "acute pancreatitis." In the first place there are lobules here and there, especially towards the splenic end of the gland, which may or may not show a few blood corpuscles in their interior, but which have a perfectly healthy epithelium. Most of the lobules, however, show complete necrosis and disintegration. The outline of the cells can hardly be distinguished and they take no stain ; they are no longer arranged in tubular form, but lie in irregular clumps, with much granular débris around them ; their nuclei are not stained by fuchsin or logwood. Between these two extremes every degree of the necrotic change can be seen. In osmic acid preparations there is no appearance of fatty degeneration of the cells. As regards the interlobular septa, they are in places healthy or nearly so, but for the most part their fibrous structure is obscured either by recently shed blood or by disintegrating blood clot, and many of them are thereby enormously swollen, so that the lobules contained in their meshes are subjected to considerable compression. Of the structures contained in the septa the ducts cannot with certainty be distinguished as they are probably filled with blood and clot ; the arteries are mostly empty and compressed and their walls are necrosed, whilst the veins are uniformly thrombosed. Where fat cells lie in the affected septa or inside necrosed lobules the fat is invariably converted into tufts of feathery crystals, the so-called "fat necrosis," and

around such spots, but also occurring elsewhere, are bunches of orange crystals, presumably derived from the blood. There is very little evidence of an inflammatory process. Here and there in the affected septa are a few clumps of leucocytes and a certain number can be seen penetrating the necrotic lobules from their periphery, but the appearance is not such as to warrant speaking of the condition as an acute pancreatitis. Neither by Gram's method nor by the use of fuchsin can any micro-organisms be discovered. It is clear, then, from the microscopical examination that the morbid process is twofold. There is (1) hemorrhage into the interlobular septa and (2) death of the secreting epithelium. It is possible, of course, that some agent which is not yet known is the cause of both these processes, but they have a definite relation which suggests that the one is the cause of the other. Where the septa are intact the lobules show a healthy epithelium, where there is a little hemorrhage into the septa the epithelium shows commencing necrosis, and where they are filled with blood until they are five or six times their normal breadth their necrosis and disintegration of the epithelium are complete. The change in the epithelium is the coagulation necrosis of Weigert, and it is probably produced here, as in the similar case of infarction of the kidney, by stoppage of the arterial blood-supply. Many observers have suspected an embolic origin in these cases, but it seems impossible that any arterial embolism or thrombosis can simultaneously affect the whole pancreas. Its blood-supply is so manifold, it is fed by at least three arteries of which the branches enter it at intervals along its whole length, so that nothing short of blocking of the cœliac axis could produce a total infarction of the organ. In this case, as in all other recorded cases, there was no disease or blocking of the arteries, so far as they could be opened up with scissors. The observed condition of the septa seems, however, amply sufficient to explain the death of the epithelium; for the arteries of the pancreas lie in the septa, giving off small branches, which form a capillary network in and around the lobules, and in the condition here described blood is seen to be forced into the septa in all directions, splitting up the fibrous bundles and exercising a general compressing effect, which is certainly powerful enough to obliterate the nutrient vessels as they enter the lobules.

It may be questioned whether some at any rate of the cases described as acute pancreatitis should not be regarded as cases of primary hemorrhage into the gland, as in the specimen here recorded, with the supervention of inflammation around the necrosed parts. If the patient survives the first shock of the hemorrhage, and the destruction of gland tissue is not too

extensive, there is no pathological reason why the necrosed parts should not be removed, as in the case of infarction of the kidney. In fact, one undoubted case of recovery is mentioned by Osler, in which the condition was recognised by abdominal exploration. It must be remembered, however, that the acini of the pancreas are in full communication with the intestinal canal. Consequently, a secondary inflammation around the necrosed parts with the appearance of micro-organisms is not an unlikely event, and it is highly probable that in the form described as "hemorrhagic pancreatitis" the inflammation is really of this secondary nature. Inflammation of the pancreas, apart from a pyæmic suppuration, is a very rare condition, and many observers have never met with it. Klebs for example, was fully aware of the occurrence of hemorrhage into the pancreas and appreciated the rapidity with which death ensues. Friedreich gives a detailed description of acute primary pancreatitis, though the examples cited are certainly open to criticism. Fitz has definitely shown that it occurs with much greater frequency than was generally supposed, and the disease has found a place in Osler's "Text-book of Medicine." Now a large percentage of the cases recorded by Fitz and two of the four cases given by Friedreich were attended by severe hemorrhage into the gland, and the hemorrhage has been looked upon as an accidental accompaniment of the inflammation. The microscopical appearances, however, of this form of hemorrhagic pancreatitis, as described by Fitz, are identical with those seen in the specimen here recorded, with the exception that in some of his cases there was rather more evidence of an inflammatory process, and colonies of bacteria had made their appearance. There is the same severe hemorrhage and the same epithelial necrosis. Thus it seems reasonable to regard these cases, not as examples of primary inflammation of the pancreas, but as being a later stage of that condition of hemorrhage into the organ which has been described above.

Finally, this fat necrosis is a very obscure condition. It was first clearly described by Balser. It consists essentially in a crystallisation of the fat, and it occurs only in the fat which is in immediate relation with the peritoneum. The change is usually seen over the whole of the subperitoneal fat, including that of the omentum and mesentery, but it varies much in extent and degree. The omentum may be uniformly strewn with white grains which have considerable resemblance to tubercles; or similar grains and nodules may be aggregated into a thick patch on its surface as large as a crown-piece. The change may be almost limited to the region of the pancreas, or the whole peritoneal surface of the front abdominal wall may be studded with raised white tallowy nodules, and in some

cases the appendices epiploicæ have become entirely converted into this material. Its origin is difficult to understand. In many cases it occurs in connection with disease of the pancreas, and this association is far too common to be regarded as a mere coincidence. It certainly occurs when the pancreas is in all respects healthy, and in most of these cases there is peritonitis from some cause, as in a specimen which I showed at the Pathological Society in November, 1892. Further, it may be found in cases of local peritonitis, and it is then accurately limited to that part of the peritoneum which is inflamed. It has also been seen during laparotomy for ovarian tumour. Its association with peritonitis, and especially its limitation to those parts of the peritoneum which are inflamed, may justify its being regarded as a change in the subjacent fat excited by the peritoneal inflammation. Where it is associated with disease of the pancreas, the occurrence of the change in the fat enclosed in that organ and in the fat immediately around it can be similarly understood as a local effect. In the specimen here recorded only those parts of the intra-pancreatic fat which lie in affected septa or lobules are necrosed; but the difficulty lies in understanding how disease of the pancreas can excite a change of this kind, which is disseminated over the whole fat of the abdomen, without any apparent inflammation of the peritoneum. At any rate, when it is found in the post-mortem room or on the operating table it is apparently of recent occurrence. The crystallised fat seems to act as a foreign body, and there is always a zone of round-celled infiltration investing the nodules. It is a condition which has some practical importance, for there is considerable probability that, if it is seen for the first time in the limited view afforded by an exploratory abdominal operation, it would be regarded as one of tuberculous or malignant deposit on the peritoneum.—*The Lancet, August* 12, 1893, *p.* 358.

DISEASES OF THE URINARY ORGANS.

36.—ON THE TREATMENT OF TERTIARY SYPHILIS BY INUNCTION.

By Campbell Williams, F.R.C.S.

It is not usual in England to resort to inunction as a method of treatment even in the early stages of the complaint, and much less so in the later. This is probably due to a variety of causes. Amongst others may be cited the difficulty in carrying it out, or the attendant expenses and loss of time may prohibit

its use by the patient. By this it will be seen that the method advocated requires the assistance of a trained rubber, for patients cannot properly perform inunction upon themselves. In the private practice of the late Mr. Berkeley Hill it was my good fortune to see a great number of cases treated in this manner with the most successful results, after failure by iodides. It was his intention, had he lived, to have presented to the profession his views upon this method of treatment. He had no faith in iodides as curative agents, but regarded them more as palliative agents. The method enjoined is as follows:—The patient is ordered one ounce of mercurial ointment with lanoline and one drachm of olive oil, to be divided into eight packets, one packet to be rubbed in after each bath. Lanoline is a better basis than lard, in that it is free from irritating fatty acids. Mercurial erythema or eczema seldom follows its use, but I have seen rather severe folliculitis. It requires the addition of olive oil to render it less tenacious, and to increase its power of penetration. Preparatory to the inunction the patient is made to sit in a hot bath for from ten to fifteen minutes. It is well to start at about 95° F. and to gradually raise the temperature to 100°, or more if it can be borne, until perspiration breaks out upon the forehead. The object is to clean the skin and open its pores. He is then dried and the ointment is thoroughly rubbed in all over the body. By distribution the friction and irritation are not localised. Such a procedure requires at least twenty minutes' good work on the part of the rubber. With the exception of Sunday, a daily bath is given. The patient should always be seen after every fifth or sixth bath, for many are intolerant of one-drachm doses, and the packets require reduction to 30 or 40 grains. The gums and the pharyngeal mucous membrane must be carefully watched, and the patient's weight recorded. Too vigorous treatment in debilitated subjects may cause increase of ulceration instead of promoting granulation; then the amount of the packet should be decreased. At the commencement of the baths the patients not unfrequently complain of languor and lassitude; but this feeling soon wears off. Sometimes they have intestinal symptoms, but the griping is not as acute as in the mouth treatment. This may be due to absorption, but more frequently owing to errors of diet. Occasionally they become slightly anæmic and require tonics. Personally, if the stomach will bear it, I prescribe iron throughout the course of baths. Forty-two baths are reckoned as a course. It is then frequently judicious to give the patient a rest for a fortnight. Specific treatment is either entirely stopped or, should the exigencies of the case demand it, very mild remedies are given by the mouth. A second course of baths, making eighty in all, is then prescribed. In the bulk of cases this has been found to be sufficient. Whilst under

inunction, the following mouth-wash is used: Five drachms of alum, two and a half drachms of acetate of lead, half a drachm of essence of peppermint, warm water to twenty-four ounces. The salts should be dissolved separately; then mix and filter and add the essence to the clear filtrate. The mouth should be washed four or five times a day with this preparation. During the course of the baths the patient is to be ordered to clothe warmly, to be in-doors after seven o'clock and to always put on an overcoat after the bath. He should avoid mental and bodily exhaustion, and take exercise daily short of fatigue. I recommend going to bed early and rising late. The teeth should be cleaned twice daily with precipitated chalk and soap. As regards diet, malt liquors, effervescing wines, acid drinks, coffee, raw fruit, salads, and pickles should be avoided; green vegetables and cooked fruit may be indulged in sparingly; the patient may eat freely of butcher's meat, eggs, fish, game, poultry and light puddings, and drink one or two pints of fresh milk daily.

Before beginning inunction I always examine the patient's mouth. Much of the so-called ptyalism can be avoided if the teeth are scaled, should the gums be spongy owing to the presence of tartar. It is well in these cases to get the patient to rub powdered alum into the gums twice daily, in order to harden them. Cases of serpiginous ulceration, necrosis, visceral and other gummatous lesions which had resisted other modes of treatment, when treated in the foregoing manner improved most rapidly. The patients were treated either in their own houses, nursing homes, or at the medical baths of University College Hospital. To the latter any practitioner may send his patient. There is a special class of case that does better at Aachen or some other quiet resort, where he is removed from the temptations of London life. This is not so much due to the action of the local waters or to superior rubbing, but rather to the circumstance that the patient is made to lead a regular life, to feed plainly, and to keep early hours.—*The Lancet*, *April* 22, 1893, *p.* 925.

Surgery.

DISEASES OF BONES, JOINTS, MUSCLES, &c.

37.—ADVANCEMENT OF A PORTION OF THE SUPERIOR MAXILLARY BONE IN CASES OF HARE-LIP WITH ANTERIOR CLEFT OF THE HARD PALATE.

By John A. Wyeth, M.D., New York.

In the earlier operations for hare-lip, in which there was an intra-maxillary cleft extending through the alveolar arch in front, I found it impossible to correct satisfactorily the flattening of the wing of the nose upon the side in which the bony

Fig. 1.—Showing Line of Division and Fracture of the Deficient Upper Maxilla before Advancement.

deficiency existed. Although the soft structures were, according to the directions of the text-books, thoroughly dissected loose from the deep attachments and the fissure in the lip was well closed, the ala nasi remained flabby and flattened, and the nostril

was very unlike that of the unaffected side. A more careful study of the condition which produced such a result convinced me that a symmetrical nose could never be obtained until the bony foundations upon which the cartilages and alæ nasi of the two sides rested were level, and this could only be done by advancing the anterior portion of the upper maxilla of the short or deficient side.

If the reader will glance at Fig. 1, which shows about the deficiency found in anterior or complete clefts of the hard palate, it is plain that the ala nasi, which rests on the normal maxilla, will be in advance of the ala of the other side, and it is also clear that no amount of plastic work on the soft tissues will bring and retain this wing on the level of its fellow. If, however, the bone is divided in about the line indicated by the dotted mark, and forcibly advanced to meet its fellow, as shown in Fig. 2, the gap will be transferred to a concealed part of the mouth and jaw. The alæ nasi now have points of support on the same plane.

The procedure in this :—After anæsthesia is effected a hole is drilled about one-fourth of an inch from the anterior edge of

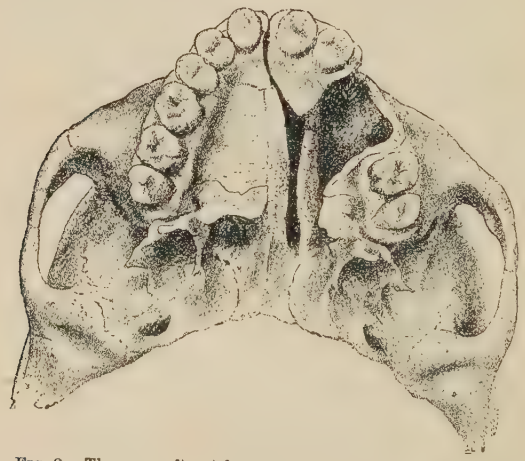


Fig. 2.—The same after Advancement and Suturing in Position.

each of the maxillary bones through the bone, and large enough to permit the introduction of a large, soft, silver wire. The edges, which after the advancement will be in contact, are fastened with cutting forceps or knife, and about half-way back

along the alveolar process of the short side, between two teeth, a strong cutting forceps or scissors divides the upper jaw deeply and freely at a right angle to the plane of the alveolar process. Instead of inserting a lever or pry to fracture the piece forward, it is best to carry a very strong cord in the fissure made by the cutting instrument and pull on this until the fracture is complete and the fragment is advanced. When this is done, a few twists of the silver wire bind the fastened surfaces together and hold the piece in its advanced position. As the soft parts have not been disturbed the bone gets its nutrition from this source, although cut off posteriorly. At least eight weeks should elapse before the plastic work on the lip is undertaken. By this time the nutrition of the bone in its new position is assured.

The results I have obtained by this operation are far more satisfactory than by any other method with which I am acquainted.

In those cases of cleft palate in which the intermaxillary process is attached to and projects from the anterior edge of the full side, it is always easy to bend or force this piece back in line with the short side and wire it here, thus completing the alveolar arch in front, and giving the alæ nasi level foundations to rest upon.—*Medical Record*, *June* 24, 1893, *p.* 769.

38.—ON THE TREATMENT OF COLLES' FRACTURE.

By Charles Phelps, M.D., Surgeon to Bellevue Hospital, New York.

There is a special fracture in the vicinage of a joint which I propose to consider with some particularity, because it is in general so badly treated. This occurs at the lower end of the radius. In its more common form, known by the name of Colles, no fracture is more frequent; and, from the long-continued weakness of the hand and wrist which it usually entails, none is more important. It is because this secondary condition is unnecessary that I characterise the treatment of which it is the direct result as pre-eminently bad. My criticism applies solely to the splints habitually employed. The reduction of the fragments by extension, counter-extension, and manipulation, the subsequent lateral flexion of the hand to the ulnar side, and the use of anterior and posterior splints with the ulna and radius in parallel position can not be questioned. It is the prolongation of these splints which is the source of evil. I believe long splints are generally recommended in the standard text-books of surgery,

and I know from my observation of hospital *internes* that their use is taught in the medical schools of New York with perhaps a single exception. It is insisted that immobilisation of the wrist is essential to the stable fixation of the radial fragments. Actual experience shows this to be untrue, so that the prolonged and even permanent disability which it causes is gratuitous. The splints should be made of thin deal, a little wider than the forearm, should extend from the elbow to the wrist, leaving both joints free, and should be secured by broad bands of adhesive plaster and, if necessary, by a roller bandage. At the elbow they should allow absolute freedom of motion at the convenience of the patient. At the wrist they should accurately compress the extremities of the radius and ulna, just reaching to the margin of the joint without encroaching upon it. Although the wrist will be unimpeded in action and the hand mechanically unrestrained, the constraint of the forearm and the dependent position of the hand will maintain their absolute quiescence. The freedom of the joint from pressure or interference by apparatus insures its future integrity of action.

If the retentive bands of adhesive plaster are applied in the manner recommended by Dr. J. W. S. Gouley, who first in this country used the short splints for radial fracture, no readjustment will be required except as the subsidence of swelling may demand. In this method the lower band is attached to the inner border of the ulna, carried over the dorsal aspect of the wrist, and then over the anterior splint. The upper band is attached to the anterior surface of the forearm below the elbow and carried over the posterior splint. Each band is made long enough to more than surround the limb. If the bands are simply wrapped around both splints, almost daily readjustment will be required for a week or more on account of the slipping of the apparatus downward. In this event great care should be exercised to avoid disturbance of the fragments.

Any splints which extend below and fix the wrist joint should be denominated *long*, and the term *short* restricted to those which leave the joint free. Some confusion in nomenclature exists from failure to make this distinction upon an anatomical basis. Long splints have been made to extend to the metacarpophalangeal articulations, or even to the finger tips. They have also been fashioned in pistol shape as a means of maintaining lateral flexion of the hand, and this point has been much exploited. The smallest experience with straight splints, long or short, demonstrates that the hand, once made to assume the proper position, will retain it without special care.

The effect of long splints upon the future usefulness of the hand and wrist is so constantly observed as to scarcely admit of question even by the advocates of their use. Months or years

often elapse before they are sufficiently restored to easily subserve the ordinary functions of life, and their finer movements, indispensable in certain occupations, are often permanently impaired. It is objected that the short splints do not sufficiently hold the fragments after reduction to obviate the danger of deformity. Experience and observation must be the sole arbiters in this point of dispute. I have never once treated this fracture in any other way, and I have never failed to keep the fragments in as good position as I was able to obtain in reduction. No splint can do more. This result has been confirmed in the practice of other surgeons who hold similar views. I believe deformity will be really less with this method of treatment, since the bone is more open to inspection, and trifling derangements can be more readily corrected and with less disturbance of the apparatus. There is equal advantage to be gained in the treatment of other fractures of the forearm by not extending the splints below the wrist.—*New York Medical Journal, July 15*, 1893, *p.* 60.

39.—THE TREATMENT OF METATARSALGIA.

By T. S. K. Morton, M.D., of Philadelphia.

The disease under consideration may be described as a painful affection of the plantar digital nerves, directly caused by pressure upon or pinching of them by certain portions of the metatarso-phalangeal articulations—especially the fourth.

Metatarsalgia is, in its lesser degrees, a very common disease. Almost everyone has suffered more or less, at times, from neuralgic twinges radiating from the joint in question. These mild cases occasionally develop into the more severe forms. In them occasional attacks of pain are often followed by periods of complete immunity.

The disease has not been observed before adolescence. Women are certainly more predisposed than are men, and its occurrence in the former sex I should judge to be almost twice as frequent as in the latter. One foot is most usually involved. especially in those cases apparently taking origin from an injury. But very frequently one foot is affected to an almost unbearable degree, while its fellow is but slightly involved. Neither right nor left foot appears to be most liable to involvement unless one or the other is constantly subjected to a motion, as in running certain sewing machines, looms, lathes, &c., while the other is not employed. In this case, as in one of my own, the pain developed in the foot so employed. When

both feet become simultaneously affected the cause will soon be found in ill-fitting or tight shoes. Middle life is the period at which the disease is most apt to develop or to become severe. The aged are by no means exempt, although in them more purely gouty or neuralgic forms are prone to occur, and persons at any age, so predisposed, appear to be much more liable to the affection—idiopathic or traumatic—than are others.

The exciting or immediate cause of metatarsalgia is usually excessive or unusual exercise of the feet while confined in new, tight, or ill-fitting shoes, as in walking over rough surfaces (mountain climbing), dancing, playing lawn tennis, &c., or in changing from a firm-soled shoe to one that permits great motion of the metatarsal arch. When the heads of the metatarsal bones are rigidly held in contact by a tight shoe it is reasonable to believe that a very slight twist or wrench of the foot would bring great pressure to bear upon the sensitive branches of the digital nerves distributed upon and about them, and, particularly in those predisposed thereto, bring about a neuralgic and even neuritic condition.

So far as relates to symptomatology, I may here mention that I regard the imperative necessity of removing the shoe, regardless of surroundings, when a paroxysm comes on, as a pathognomonic symptom of the disease. It may also be said that no evidence of the disease can usually be felt or seen, except that the parts are often of a bluish tint and cold, from venous stasis, and have a tendency to profuse perspiration.

The less severe forms of metatarsalgia may often be prevented from running into the more serious types by proper shoe construction or by wearing a narrow flannel bandage about the ball of the foot. Morton, whose suggestion the latter is, directs that the bandage be two inches wide, and long enough to wrap neatly and firmly about the metatarsus some five or six times. The end is pinned, and the stocking drawn over. This has given marked relief in a number of cases.

The shoes for persons suffering from this disease should be firm-soled, make no lateral pressure upon the metatarsus, yet have the instep tight enough to prevent the foot slipping forward. The great object of the shoemaker should be to prevent pressure, either lateral or antero-posterior, upon the metatarsal arch, and also to prevent any rolling motion of the outer metatarsal heads upon their fellows. A broad, rigid sole would appear to best fulfil this last indication. Bradford proposes the use of digitated stockings in these cases, with a view of keeping the toes further apart. As the foot spreads when the weight of the body is thrown upon the member, it is apparent that the individual should be standing when the measurements for shoes are made, as has been advised by Grün.

The use of various pads in the shoe and about the toes, also such measures as the hollowing out of cavities in the sole opposite one or more of the metatarsal heads have been tried, but invariably found unsatisfactory. A variety of the affection calling for so much attention to secure comfort would clearly demand the certain cure to be afforded by operation.

In persons where rheumatic or gouty diathesis may be suspected, appropriate remedies for those disorders should be given a thorough trial before operative measures are resorted to. But when the condition is entirely of local mechanical origin, the employment of general or local medicinal agents is useless. On the other hand, prolonged rest in bed will benefit all cases more or less, and occasionally secure relief for long periods, or even permanently cure the milder phases of the disorder.

Operative treatment should be limited to excision of the metatarso-phalangeal articulation from which the neuralgia radiates, or, perhaps, to amputation of the corresponding toe above the joint, as have been recommended by Morton and endorsed by other writers. These procedures are among the safest and simplest in surgery. Of amputation of the toe, together with its metatarsal head, nothing more need be said than that by this measure the possibility of subsequent trouble arising from a tendency of the toe to retract and ride above or below its fellows is excluded. However, this heretofore occasionally troublesome sequel can be avoided by dividing the extensor and flexor tendons while excising the joint, as I have done in five cases with most satisfactory results.

Operation.—Primary union should be aimed at. To secure this the foot must be scrupulously cleansed. A vertical incision from one and a half to two inches long is made, beginning over the proximal inter-phalangeal joint and extending upward in the centre line of the toe. The extensor tendon now comes into view, and is divided. Another stroke of the knife carries the incision through its entire length down to the bone. The handle of the knife or other moderately blunt implement is then employed to separate the tissues from the upper and lateral portions of the joint. Next the blades of a powerful sharp-pointed, narrow-bladed cutting pliers are pushed down on either side of the phalanx immediately below its base (hollow of the blades always towards the articulation), and this bone divided. The metatarsal bone is then similarly divided just above its head. The separated joint is now seized by bone forceps and dissected away from any remaining attachments. This done, the flexor tendons will be seen lying in the bottom of the wound, and should be picked up by forceps and divided with scissors. If hemorrhage is severe and not controllable by

moderate compression of the parts, ligatures should be applied. I have never had occasion to apply a ligature in this operation, as the pressure of the dressing has always sufficed to control any oozing that might continue after the sutures had been applied. The wounded edges are next to be approximated—no drainage being required if asepsis has been maintained—by continuous or interrupted suture, as may be preferred. A gauze and cotton dressing is finally applied and bound firmly on with a wet gauze roller, care being observed to place little pads of the gauze in such positions as will hold the toe in its proper position during healing.

The foot should be kept considerably elevated for the first two days, after which it may be brought to the level of the bed. I prefer my cases to remain in bed or on a couch until the fourth or fifth day, when they may be permitted to sit up with the foot resting on a chair. At the end of a week the sutures are removed ; two or three days after which the patient is permitted to move cautiously around, while at the termination of three weeks all restraint may be removed and a firmly healed wound and permanent cure confidently expected. No special form of shoe or particular care of the foot is afterward required.

In case suppuration should arise in the wound the sutures should be at once removed, the wound cavity washed out with full strength peroxide of hydrogen solution, then with 1 : 1000 corrosive sublimate solution, and gently stuffed with iodoform gauze. All of which should be repeated every one or two days until the wound closes by granulation.—*Annals of Surgery*, *June*, 1893, *p.* 680.

40.—ON SEPARATION OF THE UPPER EPIPHYSIS OF THE HUMERUS.

By Jonathan Hutchinson, Jun., F.R.C.S., Assistant Surgeon to the London Hospital.

Although the ossification of this epiphysis takes place by two or sometimes three nuclei, we may conveniently disregard this fact ; from a surgical point of view there is but one epiphysis, which includes the head and both tuberosities. The cases in which this epiphysis is divided by violence into two parts corresponding to the separate ossific centres for the head and great tuberosity, or in which the latter is alone displaced, are so extremely rare that they may be left out of consideration.

The epiphysial line is a remarkably sinuous one, the more so the older the child grows, and the sinuosity follows the curve

of the upper surface of the bone ; it is best seen in vertical sections, which show that the depth of the epiphysis is rarely more than from 2 to 3 centimetres. Almost the whole of the capsular ligament is attached to the epiphysis and the following important muscles—the supraspinatus, infraspinatus, teres minor, and subscapularis. In cases of detachment, owing to these firm connections with the scapula, the epiphysis invariably remains in the glenoid cavity. There is also a tendency for the epiphysis to be abducted. The epiphysial disc is far more important than the lower one with regard to the growth in length of the humerus. Fusion with the shaft usually occurs in the twenty-first year, though it is sometimes delayed until twenty-four, as a dissected case of von Bruns' demonstrates, and Uffelmann asserts that it may be postponed to the thirtieth.

In most cases of detachment, the shoulder-joint is probably not opened, and this is the more likely the younger the patient. It is sufficiently accurate, and a point of practical importance, to say that separation of this epiphysis before the age of about 20 takes the place of dislocation of the shoulder-joint. How much trouble in treatment and discredit to the practitioner might have been saved if this fact were generally admitted ! Time after time the doctor called in to a case of separation of this epiphysis has pronounced it to be one of dislocation, has employed various methods of reduction, and has been mortified by the tendency to recurrence and the very indifferent result obtained. The same variety in the violence employed is met with in the two cases. Traction on the arm, as in the manœuvres of child-birth, strong abduction, a violent wrench or twist of the humerus, a fall or blow on the shoulder, may all be responsible for separation of the epiphysis. And as in dislocation, the displacement of the diaphysis is in most cases (about 60 per cent.) inwards—towards or under the coracoid process. In the minority the diaphysis is driven forwards or outwards, whilst in some cases there is a diastasis without any displacement, the two fragments being held in apposition by the untorn periosteum. The younger the patient the more common are these cases of simple detachment without displacement—cases of extreme difficulty perhaps in diagnosis, but of great importance from the possible arrest of growth which may result. Whether muscular action alone may produce separation of the epiphysis, as it undoubtedly can dislocation of the humerus, is very doubtful.

Analysing the records of sixty-six cases of separation of this epiphysis (thirteen of which were under my own observation), I find six occurring at birth, and four during the first year of life. Omitting these, the average age at which the detachment occurred was 13 years, in no fewer than seventeen was the

patient 15 years old or more. Sufficient evidence exists from post-mortem examination or operation (in all, eleven cases) to enable us to say that the separation occurs in probably nearly all of the cases exactly at the epiphysial line. The strong curve of the latter, due to the upward projection of the top of the diaphysis about its centre, has already been noted, and is of practical interest. An American surgeon named Moore claimed that when the diaphysis is displaced it hitches (so to speak) against the outer and under part of the epiphysis ; hence the difficulty in reduction, to be met by a manœuvre dignified by the name of "Moore's method," which simply consists in carrying the humerus forwards and upwards, then making slight extension whilst the arm is brought down to the side, and there fixed. Moore regards this locking of diaphysis and epiphysis as of constant occurrence, and that "no plan of treatment" (except his own) "is likely to succeed." The whole contention is a fallacy. In the case of displacement of the diaphysis, here, as in other parts of the body, the main difficulty in reduction, if any exists, is due to interposition of soft parts, and especially of the tense periosteal sheath, through which the expanding end of the diaphysis has been driven.

The following are the chief points in the diagnosis of separation of this epiphysis :—(1) The age of the patient—under about 20 years ; (2) the arm is comparatively helpless, the elbow often directed a little outwards or backwards ; (3) abnormal mobility just below the shoulder-joint, best made out by abducting the humerus ; (4) rapid-swelling about the shoulder, some shortening if the diaphysis is wholly displaced ; (5) muffled crepitus on replacement.

Dislocation is diagnosed in at least 50 per cent. of the recorded cases ; a thorough examination under an anæsthetic is important. If once brought fairly back under the epiphysis the sinuous nature of the junction will tend to keep the diaphysis in place. Steady traction on the arm, slight abduction aided by rotary movement or by direct pressure, is the most likely to attain this end. There is probably no harm in trying "Moore's method," provided that no violent jerking movement is allowed. What should be done if the diaphysis protrudes just under the skin, and prolonged efforts at reduction fail ? Here (with every precaution as to asepsis) the end of the diaphysis should be exposed, the opening in the periosteal sheath enlarged, or the rent in the other soft tissues held open, and the bone returned to place. This has been done with success even at an interval of several weeks from the accident, but it is then usually necessary to resect part of the diaphysis. The same course should be followed in the cases of compound separation, where the diaphysis protrudes through the skin. In five such cases resection of

the diaphysial end was performed, and the bone returned to place, all ultimately recovering with a very useful arm. In two reduction was obtained without resection, but in one of these two inches of the bone subsequently necrosed.

Amongst the rarer complications we have to note injurious pressure on the axillary artery or plexus of nerves, the former in two cases—Clark's and Hamilton's—having caused gangrene of the whole arm. Suppuration is exceptional in the non-compound cases, and should rarely occur after reduction of the compound ones; but it has more than once led to the death of the patient. Noting also that bony ankylosis of the shoulder, from some cause difficult to explain, followed in four of my collected cases—in one suppuration had occurred—we come finally to the important question of arrest of growth in the humerus, and even in the whole arm (with or without paralysis, following detachment of this epiphysis). Striking examples have been published by Bryant, P. Vogt, Bruns, and Humphry. In these cases, as in practically every one where the arm has been more or less paralysed and non-developed, the accident which was to blame occurred at a very early age. Whether the brachial plexus is torn as well as pressed on by the displaced diaphysis in these cases we cannot at present decide.

The necessity for thorough examination, correct diagnosis, and gentleness in manipulation in every case of detachment of this epiphysis must be emphasised. Nothing will so certainly be followed by arrest of growth as roughly rubbing the fragments together, even if reduction is effected, and so destroying the delicate epiphysial disc of cartilage.

A very important question arises as to how far an operation is justifiable in a case where the diaphysis has remained partly or wholly displaced and the patient comes under care some weeks or months after the accident. What bad results have we to expect if nothing is done? First, arrest of growth, since the epiphysial disc almost certainly remains with the epiphysis. But the nearer the subject approaches adult age the less need we think of this; further, if by operation we replace the diaphysis it is by no means certain that we can prevent shortening occurring. Secondly, impaired movement at the shoulder-joint, especially in the direction of abduction and rotation. If these are much limited an operation is probably advisable, and still more so if there is evidence of pressure on the axillary vessels or the brachial plexus (both, however, rare). Thirdly, ankylosis of the shoulder. Much will depend on the peculiar circumstances of the case and the operative zeal of the surgeon, but the example of Bruns's two cases and of Smith's is very encouraging in the direction of operation. In one case (a recent compound one) the diaphysis was fixed in place of

a steel needle (Helferich), with good result. If the diaphysis remains displaced to a considerable extent a very fair result may in many cases be expected (although shortening will probably occur)—this is shown in the cases recorded by Puzey, Hamilton (two), and in one of my own. In all these, firm union occurred, and movements at the shoulder-joint were very good. Owing to ossification in the connecting bridge of periosteum, we have little cause to fear non-union between the diaphysis and epiphysis. However, in two cases (both occurring at birth) recorded by Bertrandi and Durocher, a false joint appears to have formed.

In recent cases, after reduction, care must be taken that the humerus be not rotated on its vertical axis, especially in the inward direction. The epiphysis tends, as already said, to be somewhat abducted, but not to be materially rotated. It is inadvisable to use a bulky axillary pad, and a neatly fitting poroplastic shoulder cap is one of the best forms of retentive apparatus. Weight extension can but rarely be required.—*British Medical Journal*, *July* 8, 1893, *p.* 55.

41.—A PATHOLOGICAL CLASSIFICATION OF HIP-DISEASE.

By James K. Young, M.D., Attending Surgeon Orthopædic Department, University Hospital, Philadelphia.

From careful study, extended research, and clinical observation I am convinced that the best results in the pathology of hip-disease will be accomplished by a comparison with the analogous lesion that occurs in the pulmonary organs.

Clinical observations show that hip-disease has three modes of origin: In the head of the femur, the acetabulum, or in the structures of the joint, the synovial membrane, ligamentum teres, or the cartilage lining the acetabulum or covering the head of the femur, *i.e.*, a femoral, acetabular, or arthritic origin. It exhibits itself in three different groups: (1) the acute tuberculous form (miliary); (2) the chronic ulcerative form; and (3) the chronic tuberculous form (fibroid), corresponding with the manifestations of tuberculosis in the lungs, the acute miliary tuberculosis, chronic ulcerative, and fibroid phthisis, respectively.

The primary osseous origin of hip-disease has been fairly established for some time, though authors differ greatly as to the relative frequency of femoral and acetabular osteitis. The primary origin in the synovial membrane and ligamentum teres has, in my opinion, been established since the report of the well known case of Willard and Shakespeare, notwithstanding

the criticism made by Gibney, that the patient had been under efficient treatment and the osseous changes may have been retrogressing. If any doubt exists as to primary synovial tuberculosis, or primary tuberculous chondritis, a careful perusal of Senn's recent contribution to clinical surgical pathology should dissipate it.

According to the mode of infection there are two distinct forms of initial lesion, the osseous and the synovial.

(a)—When the bacilli, through trauma of the osseous structures, become localised in the head of the femur or in the acetabulum, the rapid proliferation of cell-division proceeds, and produces in a few days gray miliary nodules. According as the number of bacilli is large or small, and the tissue-soil favourable or unfavourable, will be the development either of a general or a localised tuberculosis, and the ultimate termination of the process, whether of caseation, ulceration and destruction, or sclerosis, constriction, and healing.

(b)—When tubercle-bacilli, through trauma of or invasion by extension into the soft structures, become localised in the synovial membrane or the round ligament, or are absorbed by the cartilage from the perichondrial blood-vessels, the aspect differs. The synovial membrane becomes rapidly and extensively affected ; the process is not confined to a constricted area, but has a more general distribution, and may involve the greater part of the synovial membrane or the entire articulation. In this mode of infection we see the characteristic *fungous synovitis* and the areas of the so-called pedunculated papillomatous growths. These growths, with caseation, ulceration, and abscess-formation on the one hand, and sclerosis and limitation on the other, make up a comprehensive picture of chronic tuberculous osteitis.

The acute tuberculous form is a destructive form of hip-disease, due to a florid tuberculosis of bone or synovial membrane, and rapidly fatal from tuberculous meningitis.

The chronic ulcerative form is the ordinary form of hip-disease. Tuberculous from the first, it becomes ultimately a septic-infectious form from the formation of numerous abscesses and the presence of the streptococci and staphylococci aurei. It frequently terminates fatally from albuminoid degeneration.

The chronic tuberculous form is a slow, painless form, with little tendency to abscess-formation, and tending towards a spontaneous cure.

(1)—*The Acute Tuberculous Form.*—This type of hip-disease is the analogue of acute pneumonic tuberculosis, commonly known as galloping consumption. It occurs in both children and young adults, with inherited tendency and slight resistance. Two types may be recognised—a synovial and an osteitic.

(a)—In the synovial variety the onset is abrupt and acute, and usually in an individual who has previously enjoyed good health, although in many cases there may be a history of exposure to cold or traumatism. If the fungous granulations are scanty there is copious effusion, tuberculous hydrops, marked fluctuation, slight deformity, severe pain, and normal temperature. The condition may terminate at this stage or may become a fungous synovitis.

If granulation-tissue be abundant, there is little or no effusion in the joint, slight or no fluctuation, extensive deformity, without much suffering, and with slight fluctuations of temperature from the norm. Suppuration may occur in the granulations, and pus may accumulate in the joint until the capsule is ruptured and general infection occurs, or a spontaneous or artificial opening exposes the individual to infection with pus-microbes from without, with rapid impairment of the general condition, pyrexia, hectic, and progressive anæmia and emaciation.

(b)—In the osteitic variety the commencement is likewise sudden in persons debilitated from acute infectious diseases, or from any cause. Pain initiates the attack, and is a prominent symptom throughout the disease. Localised tenderness on pressure is early present, and is one of the most positive indications of osteo-tuberculosis. There is little swelling or œdema, until the para-periosteal structures become infected. Then the para-articular tissues become markedly indurated, and abscess-formation rapidly occurs. Muscular spasm, deformity, and atrophy are extreme. The pyrexia runs high, and the general condition rapidly deteriorates. The destruction is rapid, and death may occur from exhaustion, tuberculous meningitis, or, if the disease drags itself into the chronic ulcerative form, from amyloid degeneration.

While the disease is confined to the articular structures, it is a pure, florid, rapid tuberculosis ; but when ruptured abscesses and sinuses expose an exquisitely prepared tissue-soil to atmospheric infection, suppurative microbes inaugurate a local septic process, and finally a pyemia.

(2)—*The Chronic Ulcerative Form.*—Under this heading may be grouped the great majority of cases of hip-tuberculosis in which the lesions proceed to ulceration and softening, and ultimately produce the well-known picture of chronic hip-disease.

A purely tuberculous affection from the first, it ultimately becomes in many cases a mixed disease, many of the most prominent symptoms of which are due to purulent cavities and septic infection. The initial lesion in the majority of instances is an osseous one, either in the epiphysis of the femur or in the acetabulum, in the majority of the cases being, in my opinion, in the former situation.

The onset is gradual, and its progress is characterised by three well-marked stages ; the first, from the onset to the formation of pus within the joint ; second, from the end of the first until pus appears outside the joint ; and third, from the second to the end, the period of flexion, abduction and of adduction, or shortening, respectively, which is practically identical with the division of Adams and Wright.

Pain, muscular spasm, atrophy, lameness, malposition of limb, induration about the trochanter, changes in the outline of the region of the hip, lordosis of the lumbar spine, are all well-marked and characteristic. Muscular spasm, and night-cries or pains, are prominent symptoms of this variety. Indeed, this variety may be said to correspond to the painful form of other writers. Suppuration occurs in a large proportion of these cases, the relative frequency being much modified by appropriate treatment.

Exacerbations are common, and, but for exhaustion from prolonged suppuration, the prognosis of a favourable termination is better than in the former variety, or in some instances of the type about to be described.

(3)—*The Chronic Tuberculous Form.*—This group includes a class of cases which, while not common, are sufficiently numerous to form a well-recognisable type. The onset is gradual, and the progress of the disease slow. Muscular spasm is an early and constant symptom, fixing the limb rigidly in the majority of instances. In a few, particularly when there has been much shortening, there may be great mobility without pain.

The local sensibility is not increased, and pain as an important symptom is absent. Night-cries may be present, but are insignificant. Muscular atrophy and shortening are the prominent characteristics. Abscesses seldom occur, but when present are accompanied by extreme shortening of the limb, and in some instances entire destruction of the head of the femur. The tendency is toward recovery, with great shortening, extreme atrophy, and firm, fibrous ankylosis.

This form may come on gradually as a sequence of a chronic ulcerative tuberculosis or a tuberculous synovitis. The condition is one of sclerosis and induration, with gradual shrinkage, from the superabundance of fibrous tissue, the tendency of the pathologic process being conservative and healing. If the initial lesion be in the synovial membrane, effusion is slight, granulations are scanty, but fibrous ankylosis is marked and extreme ; if in the osseous structure, the limitation of the tuberculous foci is effected by a condensing osteitis, and the tendency to purulent degeneration is reduced to a minimum. When pain or night-cries occur, they are usually due to involvement of the synovial membrane by the extension of the disease from the epiphysis.

These three groups include all cases of true hip-disease. Several forms of arthritis have been placed under this title which do not, in my opinion, belong there. Acute arthritis in infants and acute pyogenic arthritis in adults from typhoid fever, sepsis, &c., do not naturally belong in this category.

The transient or ephemeral form, of which I have observed a few instances since attention was attracted to the subject by the interesting observations of Lovett and Morse appears to me to include cases of the acute tuberculous form which have rapidly and spontaneously recovered. I have now two such cases of the acute tuberculous form under observation, in which all the symptoms have entirely disappeared.—*Medical News, April* 15, 1893, *p.* 404.

42.—DISEASE OF THE SACRO-ILIAC JOINT.

By John Ridlon, M.D., Professor of Orthopædic Surgery in the Chicago Post-Graduate School; and

Robert Jones, F.R.C.S.E., Surgeon to the Royal Southern Hospital, Liverpool.

Disease in the sacro-iliac articulation is of rare occurrence, occurring generally between the ages of seventeen and thirty. Existing apart from spondylitis in the lower lumbar spine it is of still rarer occurrence, and the diagnosis is so obscure that surgeons, careful observers, and of extended experience in joint diseases, affirm that they have never met with it.

For the most part, and perhaps always, the disease is tubercular, and is governed by the same laws of pathology, symptomatology, prognosis, and treatment that govern articular tuberculosis elsewhere. To spondylitis, however, the relation is especially close, and, as has already been stated, it occurs much more frequently associated with lumbar spondylitis than as a separate and distinct articular affection.

Traumatism appears to be frequently the exciting cause, but there can be no question that the disease occurs without any remembered injury, especially in those predisposed by heredity to tubercular infection. It may commence in either of the bones which go to form the joint, or in their neighbourhood. Disease of the bones is far more frequently met with than that of other structures, and, on account of the strength and thickness of the posterior ligaments and the absence of definite subjective symptoms in an early case, it is rarely recognised before suppuration has occurred, or the bone considerably invaded. The disease

may be of the so-called moist form, and show early suppuration: or of the dry form, and run its course without suppuration; or the dry form under certain circumstances may at any time become suppurative.

Symptoms.—The first symptom to appear is usually a peculiar attitude, a "listing" of the trunk towards the unaffected side, or, more properly speaking, a shifting of the pelvis toward the affected side, and as this progresses the spine assumes a long sweeping curve with its convexity toward the sound side. Before the peculiar attitude has become sufficiently marked to cause comment the patient has usually found himself fatigued from comparatively slight exertion, and has experienced difficulty in bending forward and rising up again. Ultimately stooping becomes quite impossible. The gait becomes of a waddling character, and as the disease advances the patient usually becomes unable to walk at all. In the early stage there is generally no flexion of the thigh, and apparent lengthening may or may not be present, while apparent shortening is sometimes observed.

The patient on standing, rests well upon the heel of the affected side, but places nearly all his weight upon the sound leg. The distant or referred pain, characteristic of tubercular arthritis elsewhere, is usually present here, but may be absent, and is more frequently characteristic of this affection than of disease in the hip or spine. If present it is usually felt in the lower abdomen, but may be complained of anywhere along the front of the thigh, and also along the area of distribution of the sciatic nerves. At first the swelling of the joint structures is often more easily made out by palpation per rectum, probably owing to the anterior sacro-iliac ligament offering much less resistance than the powerful thick posterior ligament; and early swelling, therefore, is directed toward the interior of the pelvis. Sooner or later, however, the external swelling appears and, in most cases, advances to true fluctuation, and the tubercular abscesses is present as a complication. These abscesses may, and generally do, extend in every possible direction; upward in the multifidus spinæ into the lumbar region, downward along the psoas muscle or into the buttock, to the right or to the left, or directly inward to open into the bowel.

Muscular atrophy of the buttock and thigh muscles is uniformly present. Deep pressure over the articulation often causes pain before much, if any, swelling is noticeable, and pressing together or pulling apart of the pelvic bones also usually produces pain. This pain appears to be due more to the motion imparted than to the direct pressure exerted. At times there is a tilting of the bones one upon the other, and the joint forms a horizontal kyphosis or a deep depression. Spasmodic contraction of the

psoas muscle is a pretty constant and early symptom; resulting from this the thigh becomes somewhat flexed on the pelvis and rotated outward; hence, frequent confusion with hip disease. All of the motions at the hip may appear to be restricted, but if the pelvis be steadied and the manipulations conducted with such gentleness as to not disturb the sacro-iliac joint, it will be found that, when the thigh is slightly flexed to relax the tension upon the psoas, all the hip-joint motions are normal except those which put the psoas on the stretch, namely, extension and inward rotation. In the same way the contracted psoas muscle limits the motions of the lumbar spine, and the resulting condition simulates lumbar spondylitis. Passive bending of the spine toward the affected articulation or forward when the patient is recumbent in a forward direction, if done with great gentleness and with the pelvis steadied, will by the freedom of movement exclude spondylitis from the diagnosis. The differential diagnosis is chiefly to be made from hip disease and spondylitis, and it can only be made by remembering that disease in any joint restricts, not some, but *all* its normal movements to some extent. In cases of sacro-iliac disease where the muscular spasm and pain are intense, it may not be possible at once to differentiate, especially since the disease has been seen to be coincident with hip disease, and since it is more frequently found in connection with spondylitis than existing alone. The condition may be mistaken for sciatica, or for intra-pelvic inflammation, or abscess in connection with old and recent perityphlitis, but a careful examination and a consideration of the history of the case should clear up these points.

Mechanical Treatment.—The mechanical treatment of sacro-iliac disease is not one of the most encouraging of orthopædic problems. It consists in a more or less successful attempt at immobilisation, but it is found far less easy to immobilise this joint than the hip or spine, and satisfactory immobilisation by an ambulatory apparatus is practically out of the question. The mechanical treatment which should be employed, is the Thomas double hip splint, with the main stems separate at such a distance that they will pass to the outer side of the posterior superior spines of the ilia, with a broad leather sling passing from one stem to the other, and reaching from the coccyx to the mid-lumbar region. Lateral wings should be attached to the stems to pass around the flank on either side, and the pelvis is to be encircled by a broad girdle of leather or webbing.

The patient is to be kept continuously recumbent until the active stage of the disease has subsided for some time. Inasmuch as this disease appears usually in adult life and but rarely in children, and inasmuch as the joint is readily accessible, we are of the opinion that as soon as suppuration occurs operative

measures looking to the removal of all tubercular material are to be considered, and that such measures are justifiable in a very much larger percentage of cases than when the disease is located at any of the other joints. It is of advantage to prevent, when possible, intra-pelvic burrowing, and this can be done without our having to reflect (as we are forced to in the case of hip or knee) upon an anchylosis which is harmless, or a shortening of limb which, of course, cannot occur.

The *Operative Procedures* are determined by the facts learned from palpation externally and by the rectum. If an abscess can be detected within the pelvis the incision is made directly down upon the ilium external to this point, the bone trephined, the abscess cavity gently and thoroughly cleansed, more bone removed, if necessary, with cutting forceps or chisel, all cut bone surface thoroughly seared with the actual cautery and the wound closed. If no point of fluctuation can be made out, the incision is determined by the œdema, or in the absence of œdema by the tender point. The bone is trephined for a caseating centre, and the subsequent steps of the operation are as above indicated. After any operative procedure the joint should be immobilised in the Thomas double hip splint, and the patient confined to bed until all local tenderness has passed away.

It is possible that there are more reasons to justify the use of the drainage-tube after operations upon this joint than upon others, but we believe that a second or several repetitions of the operation entail less risk than its insertion.—*Annals of Surgery, March*, 1893, *p.* 285.

43.—ON THE OPERATIVE TREATMENT OF SEVERE CLUB-FOOT IN CHILDREN.

By W. T. Walsham, F.R.C.S., Surgeon in Charge of the Orthopædic Department, St. Bartholomew's Hospital.

The operations of which I have had personal experience for these severe cases are syndesmotomy, Buchanan's operation, Phelps's open incision ; tarsotomy, or linear osteotomy of the tarsus ; tarsectomy, or removal of a wedge-shaped piece from the tarsus ; and partial or complete astragalectomy, with or without extirpation of other portions of bone.

Syndesmotomy —The objections that seem to apply to syndesmotomy in the infant have already been commented on. In confirmed cases in older children the bones are so consolidated in their faulty shape and position that division of the ligaments is

quite futile—at least it has been found so in the cases in which I have tried in this way to rectify the foot. Syndesmotomy, then, appears to have but a limited application in the treatment of congenital club foot. Thus in confirmed cases the bones are too consolidated to permit of being shifted, and in severe cases in the infant, although the bones can be moved on one another, it is at the expense of the separation of the articular surfaces, the deformity of the bones remaining unaltered. For slighter cases, with which, however, we are not now dealing, it hastens the cure, but even for such I am doubtful if better ultimate results are not obtained by the more gradual method.

Professor Buchanan's Operation, or the subcutaneous division of the whole of the soft structures on the inner side of the sole down to the bones, and *Mr. Arbuthnot Lane's Modification*, or rather extension of it, namely, a similar division of the whole of the structures, but on the outer as well as on the inner side, though highly spoken of by some, do not commend themselves to my judgment. The severance of the whole of the arteries, nerves, and muscles, as well as fasciæ and ligaments in the sole of the foot, appears a very severe, and one is tempted to say a not very scientific, procedure, and one, moreover, that might easily be attended with unpleasant complications. In the few instances in which I have done it no apparent harm has come, though it did not answer in permanently restoring the shape of the foot. Like syndesmotomy, moreover, beyond allowing the bones to be somewhat shifted on each other, it does not attack the root of the evil.

Phelps's Operation, or the open division of the tibial tendons and the ligaments on the inner side of the foot, has been received with considerable favour, not only in America, but in this country and on the Continent of Europe. The same theoretical objections apply to it as to subcutaneous syndesmotomy and Buchanan's operation, in that it does not deal with the deformity of the bones. It allows the foot in many cases to be brought into a good position at the time; but it remains to be seen whether relapses, as one would expect, do not sooner or later occur. My practical experience of this operation has been limited.

Tarsotomy and Tarsectomy.—Tarsotomy, or the transverse division of the tarsus, is of service where the varus is the chief defect. In extreme cases, and especially where the foot will not come up to a right angle, simple transverse division of the tarsus has not, in my hands, been sufficient for thoroughly dealing with the deformity; and a second and oblique section has generally had to be made, thus removing a wedge of bone, with the apex inwards and downwards, from the tarsus. In short, the

tarsotomy has had to be completed as a tarsectomy. My tarsotomies have been done with a chain-saw passed beneath the extensor tendons through a small incision on the outer and inner side of the foot. The line of section has been planned to divide the neck of the astragalus on the inner side of the tarsus and the anterior end of the os calcis on the outer side. If now unable to slide the bones in front of the section outwards and upwards sufficiently far to overcome the varus and equinus, the saw has been worked a second time through the scaphoid and cuboid. The double wedge of bone between the lines of incision thus removed should consist of a portion of the astragalus and scaphoid internally, and of a thicker slice of the os calcis and cuboid externally. As far as the operation is concerned all the patients have done well. The foot in my later operations has been placed immediately after rectification in plaster-of-paris, and kept in it without changing the first dressing till the wound has healed. The ultimate results have certainly not been so uniformly good as in the cases where the astragalus has been removed.

Astragalectomy.—I have always removed the astragalus by Lund's external incision, that is an incision extending in a gentle curve from the external malleolus forwards and downwards between the peroneus brevis and tertius. It gives an excellent exposure, plenty of room to work in, does not involve the division of any tendon, admits, after the removal of the astragalus, of the excision of any further portion of bone that may be found necessary, and leaves only a linear scar. The only difficult part of the operation is the division of the internal lateral ligament, but this can be overcome without much delay, by cutting freely round the inner side of the astragalus with the curved bone scissors. Since 1882 there have been at St. Bartholomew's 21 cases of excision of the astragalus for talipes: 16 of these cases were under my own care, the remainder were under the care of my colleague, Mr. Willett. All did well. In only two was there any suppuration, and in the majority a movable ankle-joint was obtained. In my own cases, and, I believe in those of my colleague, the foot was placed in plaster-of-paris at the time of the operation, and kept in it about a month. At the first dressing, at the end of this period, the wound had generally healed. In a few of the cases it was found sufficient merely to remove the head and neck of the astragalus, leaving the ankle-joint intact. In others the excision of the astragalus alone was not sufficient to allow of the foot being placed at a right angle with the leg, the os calcis or the cuboid in them coming into contact with the external malleolus. This locking of the bones may be overcome by partially dividing the external malleolus with bone forceps, just below its

articulation with the tibia, and then bending the malleolus backwards and outwards. If this does not suffice, more of the tarsal bones must be taken away. Thus a part or the whole of the cuboid, a slice of the scaphoid, and perhaps the anterior end of the os calcis as well may have to be excised. When once a bone operation has been embarked on it is no use stopping short till sufficient bone has been cleared away to permit of the rectification of the foot. No more should of course be removed than is necessary, but to take away too little is to my mind the graver fault.

In a case, perhaps the most severe with which I have had to deal, after removal of the astragalus and a wedge from the tarsus, there was practically no improvement in the shape of the foot. The remains of the scaphoid and cuboid were therefore sacrificed, and this being of no avail, the cuneiform bones and the anterior half of the os calcis as well. It was not till the external malleolus and the heads of the outermost metatarsal bones had been also removed that the foot at length assumed a decent and fairly satisfactory shape. This may be considered a heroic procedure, but, heroic or not, the patient was so well pleased with the result that he walked all the way from Sheffield to St. Bartholomew's to have the other foot treated in a similar way.

What is the ultimate condition after excision of the astragalus, and, if necessary, other portions of the tarsal bones? Well, at the most it is only making the best of a bad job. But the foot is plantigrade and respectable in shape, and if healing by the first intention is ensured, and passive movements are subsequently kept up, a fairly movable ankle-joint is obtained. Further, the patient's walking powers are much improved, and he can, as a rule, dispense with instruments. I say as a rule because, as all are aware, the severe deformity of the foot that calls for astragalectomy is often, after all, merely part of a general malformation of the whole limb. The muscles are wasted, the knee-joint is loose, and the neck of the femur so deflected that the whole leg turns inwards. All who have had much experience in the treatment of talipes must have been disappointed, even in cases of moderate severity, on finding that after the talipes has been cured the toes still turn inwards when the patient begins to walk. For such the long continued use of instruments reaching to the waist of course does much. But for hospital patients an osteoclasia or osteotomy of the femur with rolling of the lower fragment with the leg outwards is the quickest, and perhaps the most effectual, way of dealing with the deformity. The credit of this procedure is, I believe, due to Mr. Parker.—*British Medical Journal*, *February* 18, 1893, *p.* 341.

ALIMENTARY CANAL.

44.—TONSILLOTOMY, WITH AN ANALYSIS OF 230 CASES.

By G. Hunter Mackenzie, M.D., Surgeon to the Ear and Throat Infirmary, Edinburgh.

The text of the present communication on this simple subject is the expression of opinion by a recent writer that excision of the tonsils is a bloody and barbarous operation, followed in many instances by grave depression of health. Tonsillotomy differs from many other operations, inasmuch as it is frequently performed by general practitioners, and is not restricted to the hands of a few surgeons or specialists. Its discussion ought consequently to be of interest to the mass of the readers of the *British Medical Journal*, more so, indeed, than many of the major operations.

To assist at arriving at impartial conclusions on these and other points, the following cases, which have passed through my hands during the last few years, have been specially noted. I have been obliged to omit many other cases on account of the difficulty in following them up and ascertaining the effects of the operation.

Age and Sex.—The following were the ages and sex of those operated on:—Under 2 years, 3 males and 2 females—5; from 2 to 5 years, 15 males and 9 females—24; from 6 to 10 years, 33 males and 31 females—64; from 11 to 15 years, 18 males and 24 females—42; from 16 to 20 years, 15 males and 24 females—39; from 21 to 30 years, 23 males and 14 females—37; from 31 to 50 years, 8 males and 8 females—16; over 50 years, 2 males and 1 female—3; total, 117 males and 113 females—230.

From these statistics it will be seen that the greatest number of patients were from 6 to 10 years of age; that the males were in excess of the females, unless at the period of puberty, when the proportion of the sexes was reversed, and that the operation is rare under 2 and over 50 years. The small number operated on under 2 years of age is owing mainly to the fact that, unless the indications for the operation are very urgent, parents do not care to have infants or very young children operated on.

Indications.—The indications varied somewhat according to the age of the patient. In children up to and about 10 years of age chronic enlargement was most usually present, whilst in those about the period of puberty and onwards acute recurring swelling of moderately enlarged tonsils was generally met with.

The chronic enlargement of infancy and childhood was always associated with derangement of the respiration and of sleep—noisy, snoring, and choky respiration, and restless disturbed sleep, having invariably been present. The general health was always indifferent or bad (aërial starvation); the chest was poorly developed. These symptoms, associated with chronic enlargment of the tonsils, were aggravated in many instances by certain concomitants, such as purulent rhinitis, post-nasal catarrh, and adenoid growths and enlargement of the pharyngeal tonsil—conditions which necessarily required special attention, otherwise the results of tonsillotomy might have proved disappointing. In 157 cases both tonsils were removed; in the remainder (73) one only. The cases of single tonsillotomy were those in which one tonsil only was enlarged, or in which the recurring inflammations habitually commenced in one and the same tonsil. The single tonsil was, I think, more frequently the left than the right. It is a curious fact, without explanation so far, that most lesions of the tonsils, and of the larynx also, evince a greater tendency to commence on the left side than the right.

Anæsthesia.—General anæsthesia (chloroform) was induced in nine cases, with ages varying from 4 to 13 years. In two of these it was administered to allow of the second tonsil being removed, and in four it was a condition of the operation on the part of relatives. When it is remembered that 135 of the patients were under 15 years of age, it will be admitted that the number requiring general anæsthesia was small. Local applications of 10 per cent. solutions of cocaine were made in most of the other children.

Hemorrhage.—Profuse or troublesome bleeding never followed the operation. In the case of a man, aged 30 years, from whom a small irritable tonsil had been removed, some oozing of blood, which occurred on the second day, was readily stopped by the local application of a solution of the pernitrate of iron. I am aware that instances of persistent hemorrhage after tonsillotomy have been recorded in the medical press, and a friend of mine has informed me that he once witnessed a case of rapidly fatal hemorrhage in the practice of a brother practitioner. I believe, however, that hemorrhage will not occur if care be taken to leave a cleanly-cut surface, and if the faucial pillar or soft palate be not notched in the operation. It seems also, as I have shown in a previous communication, that drinking warm fluids soon after the operation favours bleeding. Small children occasionally vomit blood which has been swallowed immediately after the operation. This vomiting may be deferred for hours, and sometimes causes alarm to the relatives, unless they have been forewarned of the possibility of its occurrence.

Results.—In children the local and general results were without exception most beneficial, and the younger the child and the larger the tonsils, so much the more satisfactory was the after-condition of the patient. In two cases only (males aged 7 and 10 years) the tonsils re-enlarged, the one seven months and the other two years after the operation, and excision had again to be performed. In three adults the tonsillar stumps became inflamed in periods varying from three to fifteen months, and in one instance an acute abscess formed two years after the tonsils had been removed. It is right to remind the reader that in children these results in several instances were not attained by removal of the tonsils alone, but, in addition, by curetting or scraping the naso-pharynx and posterior nares, and galvano-cauterising the anterior nares in cases in which obstruction of these regions existed. Such were almost exclusively under 10 years of age, with the marked respiratory and other troubles already referred to, and in no single instance was there failure to give marked relief.

The operation did not appear to be quite so successful in regard to the removal of the deafness which occasionally accompanies tonsillar enlargement, though in some instances this was remedied, especially when the operation was supplemented by treatment of the naso-pharynx.

It does not fall within the scope of the present paper to discuss the serious disadvantages from which children with enlarged tonsils suffer in regard to their proclivity to diphtheria and allied complaints, and their marked tendency to develop grave types of these diseases. I am satisfied that the operation is neither bloody nor barbarous, and that its results will stand comparison with most of the other surgical procedures of the present day.—*British Medical Journal*, *March* 25, 1893, *p.* 635.

45.—THE TREATMENT OF PERFORATED GASTRIC ULCER, WITH REPORT OF SUCCESSFUL DRAINAGE IN A CASE.

By Gilbert Barling, M.B., F.R.C.S., Surgeon to the Birmingham General Hospital.

The following three cases show how variable may be the result of perforation of a gastric ulcer. In the first we have an example of the most acute kind, in the second there was a localised peritonitis, which at the end of a few days gave rise to general peritonitis, and in the third the extravasated

stomach contents remained entirely localised, and never involved the general cavity of the peritoneum.

Case 1.—A girl, aged 22, was seized with severe pain in the abdomen when in the act of stooping, and became very faint. She was admitted to the General Hospital under the care of Dr. Simon, with whom I saw her. Six hours after the seizure the abdomen was a little distended and rigid; it was tender on deep palpation, the pulse was rather hard, and there was vomiting and hiccough. There was no history of gastric ulcer. The abdomen was opened in the middle line below the umbilicus, and two to three pints of sero-purulent fluid were evacuated, but there was nothing to suggest any source of leakage, although a careful search was made. The abdomen was therefore washed out and drained. Death took place twenty-four hours after the operation. At the necropsy a perforating gastric ulcer was found on the anterior wall, in a position easily accessible for suturing.

Case 2.—A girl, aged 20, was admitted under Dr. Simon, with a history of possible perforation into the abdominal cavity two days earlier. Three years before she had been under treatment for gastric ulcer. Four days after admission the abdomen then being distended and tender, the pulse 150 and wiry, and vomiting being present, the abdomen was opened in the middle line above the umbilicus, and a collection of semi-purulent fluid was found between the liver and stomach. This was emptied and an ulcer found on the anterior wall of the stomach, from which a quantity of watery fluid was escaping. The opening, about half an inch in diameter, was closed with five points of Lembert's interrupted suture, and after washing out the abdomen, a tube was placed between the liver and stomach. Death took place thirty hours after the operation. At the necropsy well marked peritonitis was found, and about a pint of thin purulent fluid was found in the pelvis. The perforation was securely closed.

Case 3. *Leakage from a Gastric Ulcer: Abdominal Section Three Weeks after: Drainage: Recovery.*—I was asked to see this case by Dr. Hugh Snell, from whom I obtained most of the notes. A girl, aged 29, was on May 8th, 1892, seized with severe abdominal pain, faintness, and vomiting. She had been previously suspected to be suffering from gastric ulcer, and on May 7th she had partaken of a heavy and indigestible meal, and on the morning of her seizure she had her ordinary breakfast. An hour later she felt "something give way inside her," and this was followed by acute pain and faintness, and she looked at first as though she were suffering from internal bleeding. The pain was general all over the abdomen, but was worst in the left hypochondrium; the abdominal walls were rigid and the belly was tender. A provisional diagnosis was made of perforation of a gastric ulcer. All feeding by the mouth was stopped and morphine was administered. Under this treatment the girl improved. A little food was allowed by the mouth owing to the irritable condition of the rectum, and the only complaint was of pain in the left lumbar region on sudden movement. On May 17th, there was increased pain in this region and in the left hypochondrium, with tenderness, increased resistance, and some dulness. Two days later these signs had increased, and the temperature was 102° F. From this time to the 27th there was improvement, but on this day the breathing became hurried and the patient was restless.

On May 28th I saw the patient for the first time. Her pulse was 160; temperature 103°; respiration 60; in the left hypochondrium a mass could be felt, and it could be palpated bimanually, but without defining its limits exactly owing to the tenderness. The facial expression was very bad,

and altogether the girl was so ill that I hesitated to attempt to relieve her by operation. The incision was directly over the swelling, about the left semilunar line, and on opening the abdomen the omentum was found adherent. After separating this a mass of hard granulation tissure was found, and the finger, breaking this down, passed backwards and upwards in a direction which would lead behind the stomach and almost to where it would be in contact with the spleen. At the bottom of this a small cavity was found, containing not more than a couple of drachms of pus, of an offensive odour. A tube 5 inches long was placed in the cavity and the patient quickly put back in bed. Convalescence was very slow, and it was not until July 11th that the tube could be dispensed with. Recovery was delayed by an attack of phlebitis in each leg. At the present time (April, 1893) the girl is quite well.

The mortality after perforation is probably at least 95 per cent., so that each case recovering after operation may be looked upon as saved from almost certain death. Although the third case proved the most successful, it is clear that resort to operation at the earliest moment after perforation is recognised is most likely to prove serviceable in the large majority of cases. The diagnosis of perforation is as a rule not difficult, but in some cases there may be no evidence pointing to the stomach as the organ at fault; such was the case in the first patient.

From what has been said before, it is evident that the operative measures to be adopted are not always the same, but that they must vary with the condition which is suspected to exist. With the limited experience at present available it is not desirable to dogmatise as to the exact lines to be followed, but the following are the main outlines. The abdomen should be opened in the middle line, but not too near the costal arches. Positive evidence may at once be found in the presence of free gas or food. The area between the stomach and liver should be examined with care, so that any localised collection here should if possible be prevented from soiling the remainder of the cavity. Any extravasated matter having been removed, the perforation should be sought for on the anterior wall, especially towards the lesser curvature, where it will most commonly be found. If it be, the perforation should be sutured, and the most convenient method is by the continuous Lembert suture, the stomach being brought out of the wound if this be possible. If the edges of the perforation are too friable to hold the sutures, paring them to get a firmer tissue would only add to the time consumed, and the case would probably be better met by an extensive infolding of the margins, which could be done without much difficulty and without risk of kinking in the stomach. If the ulcer cannot be sutured, it may possibly be stitched to the lower angle of the incision. If the perforation be inaccessible for suturing, and cannot be brought to the incision, the only resource left to the surgeon is drainage, with a tube leading directly to the point of leakage. Though this falls short

of the more complete proceeding, yet drainage has been found so efficient a protection against the extravasation of other fluids, as for instance bile, that one cannot but be hopeful of it in this condition.

Whether suturing be possible or not, it is of the greatest importance that the abdominal cavity should be washed out and thoroughly flushed with hot water. When the flushing has been done, the drain should be placed *in situ* close to the point of perforation, whether it has been sutured or not. It may also be well to introduce another tube through an incision in the lowest part of the abdominal wall, so as to drain the pelvic cavity. The want of this precaution I believe interfered with the well-doing of my second case, in which a considerable quantity of fluid had accumulated in the pelvis.

In the more chronic cases, such as the third, the treatment should be different. An incision directly on to any inflammatory mass would be the right procedure, and, in the event of pus or other fluid being found, this should be evacuated with the greatest care, to prevent fouling of the general peritoneal cavity. For this reason I should prefer to trust to sponging rather than to flushing for cleansing purposes, as the irrigation may carry infective particles to more distant parts whence they cannot escape again, but may set up fresh mischief. A drain to the bottom of the abscess cavity is then required, and all that can wisely be done has been done. To search for the perforation, with a view to closing it, would be useless and dangerous.

The third case here described is the most successful with which I am acquainted. Since this was written a successful case of suturing has been published by Kriege in the *Berl. klin. Woch.*, December, 1892, but there is every reason to look forward to better results in the future than in the past. It is most important that practitioners should recognise this accident of perforation at once, and that immediate operation should follow. Here hours are of as much importance as days in other conditions; in fact there is hardly any emergency more urgent in surgery.—*British Medical Journal*, *June* 17, 1893, *p.* 1258.

46.—ON THE SURGICAL TREATMENT OF GALL-STONES.

By A. W. Mayo Robson, F.R.C.S., Surgeon to the Leeds Infirmary.

Affections of the gall-bladder or bile-ducts requiring surgical interference are, in by far the greater number of cases, dependent on gall-stones, which, as is well known, though, to my belief,

not sufficiently appreciated, may produce most serious ailments, many of which are only amenable to surgical treatment. I have operated on over fifty cases for cholelithiasis, and among the complications and dangers for which help has been sought have been :—Repeated attacks of biliary colic, so-called "spasms," without jaundice; biliary colic with persistent jaundice and its consequences, such as hemorrhage; intermittent pyrexia, with jaundice and pain; persistent vomiting, with such serious digestive disturbances as to threaten death from inanition or exhaustion; acute intestinal obstruction due to impaction of a large gall-stone in the bowel, or to peritonitis; simulation of intestinal obstruction due to irritation and pain; localised peritonitis, with or without ulceration of the bile passages; perforative peritonitis; septicæmia due to ulceration of bile passages; abscess of liver: empyema of gall-bladder; dropsy of gall-bladder; abscess of abdominal walls; pyelitis of right kidney; and collapse due to intense pain. The cause of the mischief, the gall-stones, may be found anywhere in the biliary tract, and although usually discovered in the gall-bladder or in the cystic or common ducts, they may be found in the hepatic duct before it joins the cystic, or even in its ramifications in the liver. Where there is neither jaundice nor distension of the gall-bladder, and when so-called "spasms" are frequently recurring and do not yield to medical treatment, the gall-stones will usually be found in a shrunken gall-bladder or in the cystic duct, but where jaundice is present the stones will probably be found in the common duct; and in either of these cases my almost invariable experience has been to find numerous and very firm adhesions, showing that the attacks have been frequently associated with local peritonitis. Where there is distension of the gall-bladder, associated with pain but without jaundice, one large gall-stone or several smaller ones will probably be found blocking the neck of the gall-bladder and the cystic duct.

Where there is persistent jaundice, with distension of the gall-bladder and without marked pain, I am always suspicious of malignant disease, especially if there is an absence of the intermittent pyrexia which usually co-exists with the presence of gall-stones in the common duct; and as operation in malignant cases is undoubtedly very much more dangerous than in simple cholelithiasis, the suspicion should be borne in mind, although in many of these cases an exploratory operation may be undertaken in the hope of finding something that can be relieved, or of relieving the cholæmia by diverting the course of the bile.

There is decidedly room for improvement in the diagnosis of cholelithiasis, especially when the question of malignant disease has to be taken into consideration; and in many cases it is almost impossible to differentiate between the mechanical

blockage of the common bile-duct from malignant disease which has not advanced far enough to produce cachexia, and that from gall-stones ; although as a rule in the latter there will be history of preliminary attacks of spasms, of pain preceding the jaundice, and of intermittent pyrexia, with absence of enlargement of the gall-bladder. The last-mentioned sign is worth remembering, as all the cases of malignant disease with jaundice on which I have operated have had distension of the gall-bladder, so as to form a perceptible tumour.

Of the operative measures undertaken for diagnosis, sounding and aspiration of the gall-bladder must be referred to. The so-called "sounding for gall-stones," either by means of a probe passed through a cannula or by the fine needle of an aspirator, is both uncertain and dangerous, and it seems to me that it may more safely be replaced by a small exploratory incision, which can be extended for treatment if required. Aspiration of a distended gall-bladder through the unopened abdomen, though apparently a simple procedure, is not unattended with danger, death having followed in more than one instance, and in only very exceptional cases can it do any good.

Here, again, I infinitely prefer to make a small exploratory incision, then to empty the gall-bladder by the aspirator, and afterwards to explore the bile passages with the fingers. If, however, aspiration without exploration be decided on, a small needle should be used and the cyst emptied as far as possible, in order that intracystic tension may not lead to extravasation through the needle puncture. Of the proper operative procedures, cholecystotomy, cholelithotrity, cholecystenterostomy, cholecystectomy, and incision and suture of the ducts have to be considered.

I think most surgeons are agreed that cholecystotomy is the operation *par excellence* in the treatment of gall-stones, and although, as often happens, where there are adhesions and a shrunken gall-bladder, it is an operation of considerable difficulty, statistics prove that in the absence of malignant disease and persistent jaundice, it is a procedure attended with little risk ; for instance, out of thirty such cases on which I have operated I have to record recovery in all. Even in the presence of cholæmia the mortality, in the absence of malignant disease, is very small, for out of fifteen cholecystotomies for jaundice with gall-stones, in the absence of cancer, I have not lost one patient as a result of the operation.

Although cholecystotomy has undergone various modifications, such as operations *à deux temps* and immediate suture of the opening in the gall-bladder—the so-called ideal operation—I very decidedly prefer the old method in which the gall-bladder is drained.

Instead of suturing the edges of the incision in the gall-bladder to the skin, I fix it to the aponeurotic layer of the abdominal wall, and thus lessen the danger of a fistula, as between the opening in the gall-bladder and the skin is a layer of tissue which soon becomes covered with granulations, and the contraction in healing usually secures closure.

I prefer the vertical incision, and have never found it needful to employ any other. The so-called "ideal" operation—that is, closure of the gall-bladder—is only applicable to cases where the ducts are clear, which may be known by filling the gall-bladder with water through the cholecystotomy opening, and compressing it to see if the fluid will pass on into the bowel. The statistics of cholecystotomy have apparently proved this method to be decidedly more dangerous, but I think, as recently reported cases would seem to prove, the danger may be overcome (1) by proper selection of cases, and (2) by careful suture first of the margins of the incision, and then of the peritoneal surfaces. To my mind, drainage of the gall-bladder not only presents the advantage of treating the vesical catarrh by securing physiological rest, but in case the ducts have not been cleared it becomes possible to apply through the fistula hot water or some solvent solution directly to the concretions. Where the gall-bladder is shrunken and cannot be brought to the surface, I have usually been able to tuck the parietal peritoneum down, and suture it to the margins of the incision in the viscus, but in several cases where I could not do this I utilised the omentum, suturing it to the gall-bladder and to the parietal peritoneum, thus occluding the peritoneal cavity. Where occlusion in this way cannot be effected, the insertion of a drainage-tube into the gall-bladder without suture of the margins to the wound seems to be efficient. In such cases I have had no untoward results, as it is apparently easier, on account of intra-abdominal tension, for effused fluids to discharge directly through the tube than to pass among the viscera; and probably within forty-eight hours the drainage-track from the gall-bladder to the surface is quite formed, and no longer communicates with the general cavity of the peritoneum; hence I can see no need to follow the plan suggested by Mr. Knowsley Thornton of performing suprapubic drainage in any of these operations on the gall-bladder or bile ducts. In clearing the ducts of concretions, the surgeon must be guided by circumstances; as a rule, forceps within the duct and the fingers outside will overcome any difficulty in the cystic duct, and occasionally stones may be worked backward by the fingers even from the common duct, as I proved a short time ago, where, after trying ineffectually to crush two stones, the size of small nuts, between the fingers placed in the foramen of Winslow and

the thumb placed in front of the common duct, I found that I could work them backward, and in a short time I brought them out through the incision in the gall-bladder.

Not infrequently the common or even at times the deeper part of the cystic duct cannot be cleared in this way, and then cholelithotrity (first performed by Mr. Lawson Tait) may be attempted. I have published a number of cases in which I have crushed stones in the ducts, and afterwards found the fragments in the motions. I always first try to crush them between the finger and thumb, and failing this employ forceps covered with india-rubber. At times this method will fail, when incision of the duct and removal of the concretion, as first performed by Mr. Thornton, may be done; the opening in the duct being sutured, and the right kidney pouch drained. In two cases I have found the gall-bladder displaced, and projecting into the right loin, as if the liver had been rotated to the right. In both of them I was able to crush the stones, and clear the ducts without opening the shrunken gall-bladder, that is, to perform cholelithotrity without cholecystotomy. In one case, after cholecystotomy with crushing of calculi in the common duct, the fragments did not pass until I injected a few drops of a solution of turpentine in ether into the fistula. Great pain followed, the duct became patent, and the fistula closed, the patient having remained well since. The result in this case was probably due rather to the contractions set up in the duct than to the solvent action of the remedy used; and I cannot, on account of the severe pain set up for some hours, fully recommend its employment in similar cases.

Mr. J. W. Taylor's method of syringing hot water into the fistula night and morning in order to soften the stone or to force on the fragments is probably a more efficient and safer method, although I have not found the solution of taurocholate of soda which he advised to answer any better than simple hot water, and even in the test tube it seems to be a poor solvent of gall-stones.

The following conditions seem to me to be the indications for cholecystotomy:—(1) In frequently recurring biliary colic without jaundice, where medical treatment has failed; (2) in persistent jaundice, where the onset was ushered in with pain, and where recurring pains, with or without ague-like attacks, render it probable that the cause is gall-stones in the common duct; (3) in distended gall-bladder from impaction of calculi in the ducts; (4) in empyema of the gall-bladder; (5) in persistent jaundice with enlargement of the gall-bladder dependent on some obstruction in the common duct, even where the cause cannot be clearly made out, but the increased risk should be borne in mind, as malignant disease may not improbably be the cause of the obstruction.—*British Medical Journal, April* 15, 1893, *p.* 789.

47.—A CASE OF PYLOROPLASTY FOR NON-MALIGNANT STENOSIS OF THE PYLORUS; RECOVERY.

By A. Pearce Gould, M.S., F.R.C.S., Senior Assistant Surgeon to the Middlesex Hospital.

In December, 1892, I was asked by Dr. Chepmell to see, with the view to operation, a single woman aged 58 years. The history of the case was that for more than twenty years the patient had suffered severely from dyspepsia. Two years ago she passed through a severe attack of peritonitis, which appeared to originate, and to be most marked, in the upper zone of the abdomen. Since this illness her dyspeptic symptoms had been much worse. She had emaciated to an extreme degree; although above the average height, her weight was only 6 st. 10 lb. She complained of constant pain, chiefly situated to the right of the umbilicus, and passing through to the back, which was at times very severe indeed. She was very hungry and thirsty, but the only food she could take with any comfort was junket for breakfast, the best part of a chop for lunch, and the breast of a partridge for dinner; all kinds of fluid made her sick, and she was greatly distressed by flatulence, and had attacks of vomiting every few days in which large quantities of undigested food were brought up. The stomach was greatly dilated; at times it could be felt reaching to the pubes, and a splashing sound could be easily elicited in it. The bowels were very constipated. No tumour, lump, or induration of any kind could be felt in the abdomen; the liver and spleen were normal; there was no ascites. The temperature was 95°; the pulse 66; the skin was dry and rough, and the mucous membranes were pale. Lavage of the stomach and rectal feeding had been tried, but had not afforded relief. The diagnosis that had been arrived at was non-malignant stricture of the pylorus, or compression of the pylorus by adhesions resulting from the peritonitis two years ago. It was decided to explore the part, and, if necessary, to perform pyloroplasty; and in this advice Dr. Cayley, who had previously seen the patient, concurred. The patient was prepared for the operation by a thorough cleansing of the lower bowel by an enema, a large quantity of the hardened residue of meat suppositories being removed. The night before the operation the stomach was washed out with a watery solution of salicylate of soda (two and a half per cent.), and then by three pints of warm water. In fifteen minutes the patient complained of a humming noise in the ears, which quickly increased to a most distressing headache and a sense of the loudest noises,

Some brandy was given by the mouth, and a senna enema. She passed a bad night, but the pain was much better in the morning. On the day of the operation the only food given by mouth was one ounce of meat juice at 11 a.m., but at 9 a.m., and again at 12 noon, an enema of four ounces of beef-tea and one ounce of brandy was given. The operation was performed at 1 p.m. on December 14th, 1892, with strict antiseptic precautions. Chloroform was administered by Mr. Bailey, and I was assisted by Dr. Murray and Mr. Penrose Williams. The patient was clad in flannel and was laid on a water-bed filled with hot water, and hot bottles were placed under each arm and between the thighs. The abdomen was opened by a median incision four inches and a half long, reaching down to one inch below the umbilicus, and the pylorus was at once found. Some fine but

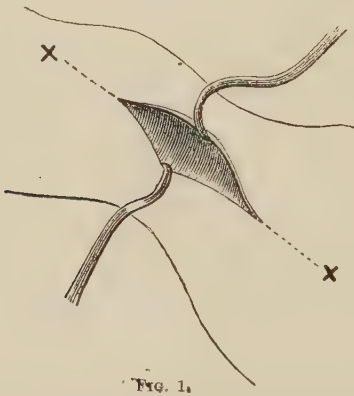


FIG. 1.

rather tight peritoneal adhesions over the pylorus were divided. Having protected the parts around with pieces of flat aseptic sponge, an incision one inch long was made into the stomach close to the pylorus, and in the long axis of the stomach in the middle of its anterior wall. Passing in the little finger, the pyloric opening was found to be contracted to the size of a crow quill. The incision was then prolonged through the pylorus and on into the duodenum, until it was two inches, and possibly a little more, in length. (Fig. 1.) A few arteries bled, and were tied with fine catgut. The longitudinal incision was then held widely open by two blunt hooks placed in the middle of each side, and it was sewn up transversely with two rows of interrupted sutures. The first row was passed through the mucous and muscular coats only, and the second through the

serous and muscular coats only. (Fig. 2.) Fine silk was used for these sutures, which were placed a quarter of an inch apart, and were threaded on fine, curved, round-bodied needles. The tags of the peritoneal adhesions were brought over the line of suture and fixed by one or two additional sutures. The peritoneal cavity was carefully cleansed and the external wound closed with silkworm gut sutures, and dressed with double cyanide gauze held in place by strapping. The operation lasted just over an hour. The patient bore it well, showed no signs of collapse, and the pulse was as good at its close as at its commencement, a result largely due, it was thought, to the external heat that was applied. The patient's convalescence

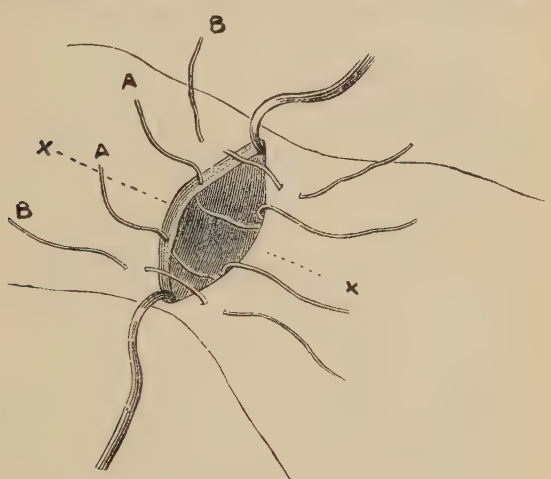


FIG. 2.

was comparatively uneventful, and only the more important items need be mentioned. The highest temperature recorded was 99·6° on December 17, and, with few exceptions, it was normal or a little subnormal. The pulse rate—120 after the operation—fell to 92 the same evening and to 75 on the fourth night, and remained thereafter between 66 and 75. The wound was dressed on the tenth day, and found to be entirely healed by first intention; the stitches were removed at this dressing. For the first week the patient was fed by nutrient enemata, and suppositories were given alternately, and for the second week two or three nutrient suppositories were given every day. For the first day only small pieces of ice were given by the mouth;

next day meat juice in small quantities was given ; on the third day milk was added, and gradually the diet was improved, an egg being given on the eighth day, chicken on the ninth, and a chop on the eleventh day. No difficulty was experienced in the digestion of this food ; the appetite was good, food was enjoyed, and it gave rise to no pain nor to flatulence. The bowels were troublesome. No solid motion was passed until the eleventh day, and for a fortnight after that a good deal of difficulty was experienced in securing the proper action of the bowels. The patient got up on the twenty-third day and returned home on the thirty-sixth day after the operation ; she was then seven pounds heavier than on the day of the operation. The patient is now—five months after the operation—leading an active life and enjoying a freedom from pain and dyspepsia that she has not known for many years.

Non-malignant stricture of the pylorus is not a common disease, and from the relatively large number of operations for it which have been reported by Italian surgeons—notably by Loreta of Bologna—it appears to be more frequently met with in Italy than in this country. How far the disproportion is real as well as apparent there are no means of judging. Loreta's operation attracted a great deal of attention, and no doubt many of his patients went to him from distant parts of the Continent. The rarity of the affection explains the want of knowledge of its true pathology. In some cases the stricture follows the swallowing of corrosive fluids, in others the healing of an ulcer at the pylorus. These may be spoken of as "cicatricial strictures." There are other cases where there is no such explanation to be given ; they are sometimes described as examples of hypertrophy of the pyloric muscle, at others as fibroid thickenings or degeneration of the pylorus. As a rare result of chronic gastritis great thickening of the submucous and muscular coats of the stomach, with contraction, is met with ; in some instances the whole organ is involved, in others the change affects the pyloric part of the stomach only, and probably this change, limited to the pylorus itself, may account for some of the cases of simple pyloric stricture. In this particular instance the narrowing was limited to the pylorus. With the exception of the adhesions there was no change in the external appearance of the stomach, nor did the incision into it reveal any obvious change in its walls. The attack of peritonitis suggests the possibility of gastric ulcer, but the slight extent of the peritoneal adhesions is against that view, and it is well known that chronic gastritis may lead to acute peritonitis, and that seems to have been the case here.

At the time I saw the patient it was evident that, unless relief was obtained speedily, she would soon sink from chronic

starvation. Of the possible operations, pylorectomy and gastro-enterostomy were at once rejected: pylorectomy as unnecessary and too severe and dangerous; gastro-enterostomy as less satisfactory than a widening of the narrow pylorus. Of the two methods of obtaining a wider pylorus, pyloroplasty was chosen as safer and more likely to be permanently successful than Loreta's operation of divulsion. Both operations entail incision into the stomach and subsequent suture of the wound; so far their perils are the same. But whilst pyloroplasty consists of a clean cut through the anterior wall of the pylorus, where it is most free from large vessels and under the operator's eye, the effects of divulsion are not seen, and may be more or less than the surgeon intends, and be inflicted upon important vessels. The statistics of Loreta's operation show cases of death from complete rupture of the pylorus on its posterior aspect and also from hemorrhage; the "plastic" operation is entirely free from these dangers. A further most important consideration is the question of relapse. Divulsion has been followed by recurrence of the stricture, and in many cases the operation has been repeated, and, looking to analogous cases, this is what one would expect. A sudden dilatation of the strictured urethra or rectum is well known to be followed by relapse unless special means are used to maintain the enlargement; all such special means are inapplicable in the case of the stomach. Stretching the pylorus may consist of over-stretching the muscular ring, analogous to stretching the sphincter ani—this may be entirely satisfactory in its result; on the other hand it may effect a tearing and stretching of fibroid or cicatricial tissue—a process known to be very unsatisfactory in many cases. Pyloroplasty, on the other hand, introduces new and presumably healthy tissue into the pyloric ring—tissue with no tendency to contract. This explains its superiority over Loreta's operation. In this connection it is interesting to remember the results obtained by the free division of the palmar fascia in Dupuytren's contraction. Not only is the shortened fascia lengthened, but the indurated tissue softens down, and all signs of the malady may disappear. In some cases, too, of stricture of the urethra the complete division of the stricture tissue is followed not only by a widening of the urethra, but by a disappearance of the hardened tissue of the stricture. Indeed, all the evidence shows that division of a stricture (in any mucous canal) is *per se* a more certain method of cure than divulsion. In some situations divulsion or gradual stretching may be preferable on account of greater ease, or of the avoidance of particular risks, such as hemorrhage and septic infection; but for stricture of the pylorus, divulsion is both more difficult and more dangerous than its division.—*The Lancet*, *May* 20, 1893, *p.* 1183.

48.—ON THE TREATMENT OF ACUTE INTUSSUSCEPTION.

By C. B. Lockwood, F.R.C.S., Assistant Surgeon to St. Bartholomew's Hospital.

[Mr. Lockwood records a case of Intussusception occurring in a male infant, aged eight months, which was successfully treated by abdominal section and reduction after hydrostatic injections *per anum* had failed. We reproduce here Mr. Lockwood's remarks upon the case and upon the treatment of the disorder.]

There can be no doubt but that it is futile to expect success in infants and children unless abdominal operations are done with the greatest expedition. Lindemann points out that those who die after laparotomy and disinvagination of the intussusception do so within sixteen hours. Shock is the great cause of fatality, and can in great part be obviated by preventing extrusion of the intestines, by not dragging upon the mesentery, by heating instruments, sponges, and materials, and by using a hot-water bed, an appliance with which every operating theatre ought to be provided ; much, too, can be done in the after-treatment by warmth, brandy and opium. Another factor which conduces to success is the absence of septic peritonitis. The presence of vermicular contractions in the distended intestine betokened the absence of peritonitis in this case, and I may say that I have never seen this sign fail in others. The absence of vermicular movement, does not, however, always indicate that there is peritonitis, although it often does. After the intestines have been greatly distended, or after they have been making violent peristaltic efforts to overcome an obstruction, their muscular walls are not infrequently paralysed without any peritonitis. There are two great causes of peritonitis in cases of this kind. The peritoneum may become infected from without at the time of the operation or it may become infected from the interior of the intestine owing to rupture, ulceration, gangrene or perhaps other vital changes in the mucous, muscular, and serous coats. Neither of these kinds of peritonitis ought to occur. The first, which is usually called "operative peritonitis," is due to the introduction of the ordinary pyogenic cocci at the time of the operation and is strictly preventable. The instruments, towels, dressings, ligatures, sponges or other materials ought to be sterilised by heat or chemicals. Heat is reliable if properly applied. Chemicals are unreliable and demand much knowledge, care and skill in their application. The patient's skin also needs thorough disinfection, as well as the hands of the operator and of his assistant. The admirable experiments of Grawitz,

Walthard, Waterhouse, Fraenkel, Wegner, Eiselsberg and of others, clearly show that although infection is a most important factor in operative peritonitis other things have predisposing influences. Amongst these may be mentioned mechanical injuries to the peritoneum, chemical injuries, drying by exposure to the atmosphere and the leaving behind of blood-clots, fluids or foreign bodies. It is obvious that most of these predisposing causes are avoidable: the mechanical injuries by skilful and delicate operating, the chemical injuries by not introducing strong solutions of carbolic acid or perchloride of mercury upon the hands or sponges, and blood-clots by staunching all hemorrhage before opening the peritoneum and by at once clamping any bleeding vessels. The peritonitis which is caused by intestinal bacteria, especially by the bacillus coli communis, is also preventable. The able experiments of Bonnecken, Waterhouse and Arndt have proved that the bacteria of the intestines begin to traverse their walls after a loop of intestines had been constricted from four to forty-eight hours. A short venous stasis, which has no effect upon the subsequent vitality of the intestine, is enough to permit the passage of bacteria in animals and probably in human beings, especially infants. After this it is hardly necessary to add anything about the passage of bacteria through intestinal walls which have been allowed to remain invaginated until they are on the verge of gangrene. Thus the changes which ensue in the intestine in acute intussusception are analogous to those which occur in strangulated hernia and the treatment should be conducted upon similar lines. In strangulated hernia an attempt at reduction is made if the condition of the bowel permits, and if it fails an operation is performed forthwith.

Here two questions arise: Firstly, what attempts at reduction ought to be made? and secondly, what operation ought to be performed? Assuming that the diagnosis is clear, I think the results of the practice at St. Bartholomew's Hospital show that it is best to give an anæsthetic and to inject a fluid into the bowel by means of a simple india-rubber tube and funnel. The kind of liquid does not seem to matter, but warm water is as suitable and convenient as any other. The administration of an anæsthetic is, I believe, of great importance. In one case only two ounces of oil could be introduced without an anæsthetic, whilst under chloroform a pint was thrown up with a successful result. At St. Bartholomew's Hospital air seems to have been unavailing whenever it was tried, although successful cases have been recorded by Senn and others; but it is clear that neither the injection of air nor of fluids can avail after the swelling and engorgement of the invaginated bowels have reached a certain degree. Mr. Eccles, from his analysis of twenty-eight cases, concludes that injections afford a fair chance of success in cases of not more than there

days' standing, but after the third day they are of little use. I myself should hardly be so sanguine after what I have seen and read, and think that the prospects are very bad after forty-eight hours of acute intussusception.

The degree of force which is used in giving the injection and the quantity of fluid have to be graduated with great care, the probable size of the bowel and the thickness and morbid condition of its walls being especially taken into consideration. In Mr. R. W. Parker's case of a child aged three months, who had had an acute ileo-cæcal intussusception for three days, a quantity of soap and water containing a little oil was injected by means of an ordinary Higginson's syringe. Suddenly the abdomen became tense and perforation of the bowel occurred. In Mr. Bilton Pollard's case, to which I shall refer again, a male infant had had an acute intussusception for ten hours. Chloroform was given and a pint of warm water was injected with a rubber tube and a funnel raised three feet and a half. This was done twice and at a subsequent laparotomy, from which the infant recovered, Mr. Pollard ascertained that the intestines were uninjured and that the invagination had been reduced. A column of fluid three feet high was also successful in a case under Mr. Pye-Smith. The patient was a male infant who had had an intussusception for about six hours, inflation having previously failed. This probably marks about the limit of safety as regards force and quantity in infants less than a year old and in whom the intussusception is not far from the commencement of the large intestine; obviously, as the age of the patient advances, both force and quantity may be increased. Gravitation of the fluid by means of a simple rubber tube and funnel is a safe plan of giving the injection. The number of attempts which are to be made will of course depend upon the case. Success is declared by the disappearance of the tumour, by gargling beyond it, and by the intestines beyond it filling. The disappearance of the tumour as the abdomen becomes tense is apt to be deceptive, as it was in the case which I have just described. In Mr. Pollard's case after the second injection a tumour was still felt, but laparotomy proved that reduction had been accomplished by the injection and that the tumour was the engorged and swollen ileo-cæcal valve. As far as I can gather injections have only been successful in ileo-cæcal and ileo-colic intussusceptions and in those of the rectum and large intestines. There is no evidence to show that the enteric variety has been overcome. The ileo-cæcal valve will partially account for this, but enteric and ileo-colic intussusceptions are much tighter and adhere sooner than others. If the attempts at reduction fail an operation should be done forthwith as in other kinds of mechanical obstruction. In early cases there has never been much difficulty after laparotomy in either

squeezing out or drawing out the invagination. This can be done rapidly and easily by anyone accustomed to abdominal surgery, and affords, when done soon enough, a good prospect of success especially as operative septic peritonitis is a contingency which need hardly be considered by those who practise aseptis. After doubtful attempts at reduction by injections the course to be pursued must depend upon the general condition of the patient and upon the duration of the acute symptoms. The mind ought to be fixed upon the changes which are occurring in the intussuscepted bowel. Left alone gangrene soon supervenes, and even should this lead to separation of the bowel death usually ensues, as in a recent case of Dr. Robertson's. During the first twenty-four hours it is justifiable to wait a few hours to see whether the injection has succeeded; during the second twenty-four hours it may be justifiable; but, after forty-eight hours have elapsed I venture to think that the dangers of laparotomy are outweighed by the dangers of delay and that the operation ought to be done forthwith. As yet, however, early and favourable cases are the exception rather than the rule; therefore it is necessary in performing laparotomy to be prepared for the grave embarrassment of being unable to withdraw the intussusception. I do not believe that as yet the data are forthcoming which are necessary for a proper judgment as to the best course to pursue under these circumstances. The first step is, if possible, to withdraw the tumour from the abdomen and to pack the neighbouring peritoneum with sponges. In some cases it might, I suppose, be feasible to make a longitudinal incision into the invaginating bowel and so facilitate withdrawal. Longitudinal incisions into the intestines are easy to suture and repair themselves well. Further, should this attempt fail, the same longitudinal cut can be prolonged and utilised for amputation of the intussusceptum. This suggestion is due to Dr. Maunsell and Mr. Barker. The idea is to suture the intussusceptum and intussuscipiens together at the point of entrance, and then by a longitudinal incision to open the bowel and to amputate the intussuscepted part. Mr. Barker has done this twice, and although neither of the cases recovered it was demonstrated that the operation could be done quickly and that it restored the lumen of the bowel. Dr. Maunsell also mentions a case which demonstrates the practicability of this procedure. This device has the merit of imitating nature. In some rare cases of chronic intussusception the invaginated bowel has sloughed off and recovery has ensued. However, it is to be noticed that these cases are nearly always of the chronic kind and not of the acute, of which I am speaking; but it is to be expected that the invaginating bowel must oftentimes be found to be so much damaged as not to be in a safe condition for suturing. I have

seen it so friable and tender that its serous covering lacerated at the gentlest touch. Here longitudinal incision and amputation would, I venture to argue, be rash. Yet, under these circumstances, there are only two desperate expedients to fall back upon. In 1889, I resected an enteric intussusception which had reached an advanced stage. The child lived for twenty hours and at the time I thought that she had died from shock. I have little doubt now but that peritonitis was a much more potent factor. I have been unable to discover any case of recovery after the resection of an acute intussusception with immediate suture of the intestine. The other alternative is to fix the intussusception outside the abdomen with the view of its subsequent excision and suture of the intestine. A successful case of this kind has been reported by Lindemann. Or the intussusception may be removed at once and an artificial anus established. This has been done by Mr. Lawford Knaggs, but the patient, a boy aged five years and a half, never rallied, and died, as did also one operated upon by Mr. Makins. This, I believe, has been the end of all the cases treated in this way with the exception of one by Vasilieff. Two years ago I witnessed the resection of an intussusception of the ilium due to a fibrous polypus, with the subsequent formation of an artificial anus. The patient died on the following day from diffuse septic peritonitis, which seems to be the great danger of this method of procedure. As regards safety, I am inclined to think that the order of precedence of these operations will be as follows—incision, incision and amputation, resection and immediate suture, extrusion and artificial anus without resection, and artificial anus preceded by resection. However, as I have already said, the data are wanting for a final judgment. The relative merits of resection and immediate suture and of extrusion and artificial anus require to be carefully weighed. Resection with immediate suture is an ideal operation. If it succeeds the patient is cured without further operation. Shock seems to be the chief danger, but with increasing knowledge, better appliances and more skilful and rapid operating, successes will soon have to be recorded.

The history of laparotomy for the reduction of intussusceptions affords encouragement in this respect. Since Mr. Lawford Knaggs gave a table of eight cases of intussusception cured by laparotomy I have met with records of others by Mr. Annandale, Mr. Bruce Clarke, and Mr. Carver, although in the latter the symptoms were somewhat chronic, and doubtless there are many which have escaped my notice.

Time is, as I have already said, the most essential element for success in acute intussusception. Delay ought not to be occasioned by difficulties in diagnosis. The signs of acute intussusception are clear and unambiguous and ought not to be mistaken. They

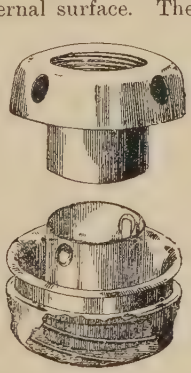
are acute intestinal obstruction, *plus* the discharge of blood and mucus from the bowel, *plus* a tumour. Blood is passed in half the cases and a tumour is equally often felt either by the rectum or in the abdomen. By acute intestinal obstruction is implied the non passage of fæces or of flatus, followed by vomiting. These symptoms alone would not point to any particular kind of mechanical obstruction, but the co-existence of the other two or of one of them would leave but little doubt that the obstruction was due to intussusception.—*The Lancet, June* 3, 1893, *p.* 1304.

49.—ON MURPHY'S BUTTON IN INTESTINAL ANASTOMOSIS.

By W. W. Keen, M.D., of Philadelphia.

[The following description of this invention and its advantages, &c., is taken from a paper based upon a case of cancer of the hepatic flexure of the colon producing intestinal obstruction, in which temporary relief was given by the formation of an artificial anus, and later the continuity of the bowel was re-established by ileo-colostomy by means of Murphy's Button.]

The button of Dr. Murphy, as will be seen from the figure, consists of two cup-shaped discs or bowls, from the middle of which protrudes a hollow cylinder. This cylinder in one bowl has a thread on its internal surface. The cylinder of the other



half is pushed within the cylinder which has the thread on it. It could easily be withdrawn after being pushed home but for the fact that through two openings in the side of the male cylinder project two teeth which catch on the thread of the screw, and practically make the two parts of a male and female screw.

In this manner, once the two parts of the button have been pressed together, they can only be detached by the rotary motion of unscrewing, but they are screwed up by simply pressing them together. After being pressed together, the two layers of intestine would shrink by loss of their fluids, and might allow of leakage. To prevent this the rim of one-half of the button is pressed upward by a spring, which thus keeps the two layers of intestine in contact as they shrink, and insures complete sloughing of the tissues between the edges of the two parts of the button.

It is certainly a most happy mechanical invention, especially the method of fastening it by what is practically a secure screw, and yet instead of being rotated in order to fasten it, it simply needs to be pushed home. The two projecting teeth, which answer the purpose of the thread of the male screw, make it one of the most ingenious devices I have ever seen. I confess I used it with some hesitation, as one always does a new instrument. I especially feared trouble at the mesenteric attachment of the bowel, where, however, I used the utmost care to see that its edges were well tucked in. In order to accomplish this, I think it very important that the free ends of the drawing string should emerge at some other point in the circumference of the bowel than near the mesenteric attachment. In applying the drawing string I did not apply the two strings recommended by Murphy, but used only one, the ends of which emerged opposite to the mesenteric attachment.

Two objections have occurred to me as to the use of the button, to one of which I do not attribute much importance, although it has some. The other, however, may be a serious objection. The first is whether such a large mass will always readily pass the ileo-cæcal valve. We all know, on the one hand, that a considerable number of cases have been reported in which the plates of artificial dentures with several teeth attached have been swallowed, have passed the ileo-cæcal valve and have been voided without difficulty. But certainly a much larger number of cases of intestinal obstruction from gall-stones have been reported. Pouzet has collected twenty-seven operations for such obstructing gall-stones, to say nothing of the cases which have died without operation. Gall-stones are less irregular than the artificial dentures and more nearly approximate in shape and size the Murphy buttons, and yet are capable of producing serious and even fatal intestinal obstruction. On the whole, however, I do not feel that this objection is a very serious one, since the condition requiring the use of the buttons if they be used, is one which must dominate all other risks. Fortunately, in the particular case here reported, the anastomosis was below the site of the ileo-cæcal valve, and I had nothing to

fear, therefore, from such an obstruction. Moreover, in the seven cases so far reported by Murphy, no such difficulty was encountered, though it was uncertain in at least one case whether the button had ever escaped. It is curious to note that in one of his cholecyst-enterostomies gall-stones of the same size as the button escaped on the eighth day, while the button was not passed till the eighteenth day.

The second objection is more serious. If the button be used in a gastro-enterostomy I do not see that there is any factor which will absolutely determine which way the button will go when it has become loose. The natural current of peristalsis, or of the food would, of course, tend to take it from the stomach into the bowel and carry it toward the rectum, but I can readily conceive it possible that the button might fall backward into the stomach, especially in the recumbent position, and if the stomach were not in active peristalsis, forcing the food into the intestine at the moment when the button became loose ; and such a foreign body in the stomach might prove a serious source of danger. So, too, in case of lateral anastomosis of the bowel, the button, instead of passing on, might slip into the cul-de-sac between the new growth and the anastomotic opening, and there create a similar danger. Both of these possibilities are theoretical, and until the method has been repeatedly tried we cannot be sure that they have any weight.

That the button is not only ingenious, but in not a few cases will prove very useful, I have no doubt. The speed and certainty with which an anastomosis can be made, once that the bowel is prepared for it, are certainly advantages which the button possesses over all other means of anastomosis, whether by simple suturing or by bone plates, catgut or other rings. Murphy states that he has completed the operation in from eleven to twenty-one minutes. The question of speed in such abdominal operations is of the utmost importance, and this device is by far the quickest of all means of anastomoses. It will be observed that I did not put any re-enforcing Lembert or other sutures around the intestine after I had clamped the button. I was so well satisfied with the security of the button that I was perfectly content to let it go without any additional sutures. Care will always have to be used to see that the silk for the drawing string is moderately stout, although not clumsy, and that in drawing it tight it is done evenly and carefully, but more especially, in clamping the two halves the greatest care must be exercised to do it gently, to see that no part of the bowel escapes the grip of the rings, and that then the two halves are driven completely home, in order to secure eventually sloughing of all the portions of the intestinal walls included between them.—*Annals of Surgery, June*, 1893, *p* 659.

50.—A METHOD OF PERFORMING INTESTINAL ANASTOMOSIS BY MEANS OF DECALCIFIED BONE BOBBINS.

By A. W. Mayo Robson, F.R.C.S., Surgeon to the General Infirmary at Leeds.

The principle of lateral anastomosis by means of decalcified bone plates, invented by Dr. Senn, is now recognised as a most valuable surgical procedure, both in intestinal and in stomach surgery. The following method of employing a decalcified bone

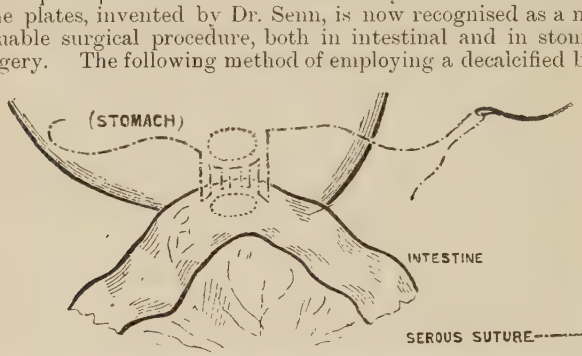


Fig. 1.—Showing serous suture applied around the posterior half circle.

tube, shaped like a cotton bobbin, is brought forward as another means of accomplishing the anastomosis. The advantages claimed for the method are :—(1) Rapidity of execution ; (2) simplicity

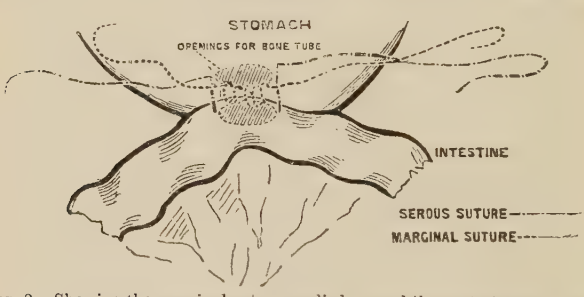


Fig. 2.—Showing the marginal suture applied around the posterior half circle.

and ease of performance, only two continuous sutures being required ; (3) the avoidance of leaving large plates in the intestine ; (4) security against leakage by the double continuous

suture; (5) the certainty of having an adequate and immediately patent opening; (6) the avoidance of the danger of after-closure of the opening by securing continuity of mucous surfaces through the new channel; (7) the avoidance of making incisions in the visceral walls larger than just necessary to admit the tube; (8) the adaptability of the principle to (*a*) lateral intestinal anastomosis; (*b*) lateral implantation, as in ileocolostomy; (*c*) gastro-enterostomy; (*d*) pylorectomy; (*e*) end-to-end enterorrhaphy after enterectomy; and (*f*) cholecystenterostomy.

The operation is performed as follows. For the sake of

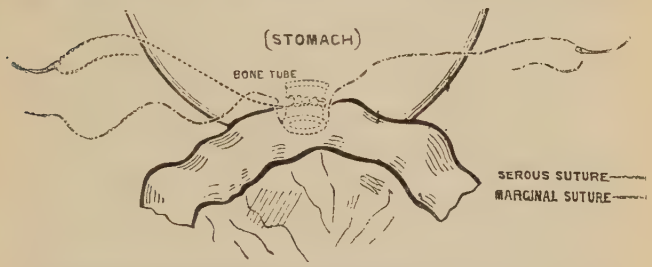


FIG. 3.—Showing tube in position and the anterior part of the marginal suture continued around the circle.

example let it be supposed that it is required to connect the ileum to the sigmoid flexure of the colon, as was actually done in the first case related.

FIG. 4.—Showing the marginal suture tied and the anterior half circle of the serous suture completed.

An incision of 3 inches was made through the parietes of the abdomen in the usual position for inguinal colotomy, a loop of the sigmoid was brought up and drawn between the fingers of

the left hand, so as to empty it of blood and of intestinal contents, the base of the loop was then encircled with a piece of drainage-tube, which was tied in one knot and clamped by pressure forceps. In the same way a loop of ileum was emptied and clamped, both loops being brought outside the abdomen. A large piece of aseptic gauze, wrung out of hot antiseptic solution, was then applied around the loops and over the abdominal wound, so as for the time being to shut up the abdominal cavity.

Nibbed forceps were applied as guides to the ileum and colon where they were to be opened. Two 18-inch long continuous sutures, threaded on curved sewing needles, were ready; the outer, of silk, was applied half an inch from the place where the viscera were to be opened, first to ileum and then to colon alternately, the suture taking up peritoneum and outer muscular coat only, and each suture taking up about one-third of an inch of surface. The suture was commenced on the right, proceeding to the left, the tail-end of the suture remaining long, and when the extreme left end was reached the needle was not unthreaded, in order to complete the suturing after the bone tube had been inserted and the maginal suture completed.

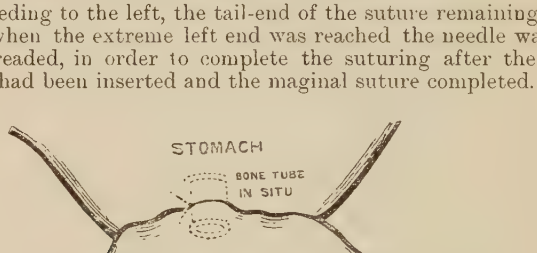


FIG. 5.—Showing the bone tube *in situ* and the serous suture completed, the ends being left long to show where the knot has been tied.

The viscera were then incised, the openings being just sufficient to admit the bone tube, but, before its insertion, the marginal suture, which may either be of chromicised catgut or of silk stained with aniline, was applied from right to left, uniting the posterior margins of the two visceral openings, the suture including mucous membrane, the tail of the suture being left long on the right and being kept threaded on the left. The tube was now inserted, one end being in the ileum, the other in the colon. The marginal suture was then proceeded with around the front until the tail of the suture was reached; the

two ends were then drawn tight, tied, and cut off short, thus uniting the mucous surfaces around the tube. The outer serous suture was then proceeded with half an inch from the marginal suture until the circuit was completed, when the two ends were drawn upon, tied, and cut off short. The sutures could not then be seen, and the anastomosis was complete.

If the ends of the gut have to be united after enterectomy the method is the same, the serous suture being inserted about one-third of an inch from the marginal one.

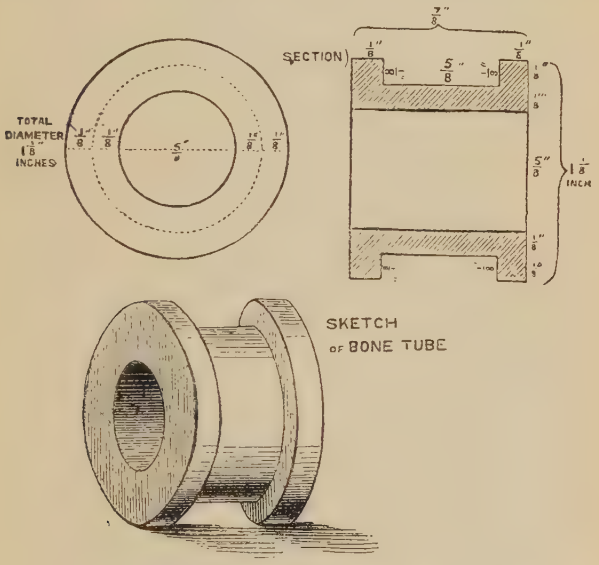


FIG. 6.—Diagram to show shape and measurements of tube.

The bone tubes—which have been made for me by Messrs. Maw, Son, and Thompson—are shaped like a cotton bobbin, and have the following measurements for ordinary use: Total length of tube, $\frac{7}{8}$ in.; greatest diameter of ends, $1\frac{1}{8}$ in.; inside diameter of tube, $\frac{5}{8}$ in.; outside diameter of tube, $\frac{7}{8}$ in.; height of rim, $\frac{1}{8}$ in.; width of rim, $\frac{1}{8}$ in. I have had some made larger and others smaller, and the tube employed for cholecystenterostomy has its barrel only as thick as a No. 16 English catheter. In some cases the oval shape may be preferred, the principle being still the same.—*British Medical Journal*, *April* 1, 1893, *p.* 688.

51.—ON RELAPSING TYPHLITIS.

By Frederick Treves, F.R.C.S., Surgeon to the London Hospital.

[Mr. Treves gives the narratives of fourteen cases, which are not here reproduced, to illustrate the various important points dealt with in his paper.]

Typhlitis may take origin in the cæcum or in the appendix. Cases belonging to the latter category are infinitely the more common.

The trouble in these instances appears to be due to some ulcer of the mucous membrane which has so far extended in depth as to induce peritonitis. It is probable that any ulcer met with in this intestine may under certain conditions induce the symptoms of typhlitis. The fact has at least been demonstrated in connection with the tuberculous and epitheliomatous ulcers. By far the commonest form of ulcer, however, which is found associated with this particular variety of typhlitis is the stercoral ulcer. This lesion is produced by the mechanical and chemical irritation of long-retained fæces, or of masses of undigested food. That the symptoms of a severe form of typhlitis may depend upon such morbid changes as these, I have demonstrated by operation in cases in which the appendix was found to be perfectly normal and free from disease.

Perforation of the cæcum as a primary condition is very rare. When a typhlitic abscess is found to communicate with the cavity of the cæcum, there is in nearly every instance evidence to show that the abscess had commenced outside the cæcum (in the appendix), and had made its way into the caput coli, just as it might have burst into the bladder or ileum, or have entered the connective tissue behind the ascending colon.

I might here add that fæcal fistulæ resulting from such perforations tend to close spontaneously after a lapse of time.

The anatomical conditions found in the great majority of the cases of typhlitis may be ranged under the following headings:

1. *There has been a moderate torsion of the appendix.*—The mesentery of the appendix is unduly scanty, and as a result of this, the little process is nearly always found to be twisted or contorted. Inasmuch as the main blood-supply of the appendix is derived through its mesentery it can be understood that torsion or bending of the process to an immoderate degree may disturb its blood-vessels and produce engorgement, or may cause undue pressure to fall upon some one part of the wall of the tube. As a result of this may follow catarrh of the mucous membrane, or occlusion of the tube at the point of twisting or bending with very probable ulceration at that spot. If the

catarrh be copious and long continued, and if the discharge can find a vent, a condition favourable for the production of an intestinal calculus is present. It is probable that the small concretions often found in the appendix have the same mode of origin as like calculi in the nasal passages. If, however, the tube become occluded, the distal segment is soon found to be distended with mucus, and to be greatly increased in size. This condition of hydrops is very common. The distended section may feel almost as hard as a stone. The fluid may escape on untwisting or unfolding the tube, or the lumen may be found to be occluded by fibrous tissue, the result of long-continued ulceration. Within the distended portion of the tube may be found mucus or muco-pus or pure pus, and more or less ulceration of the lining membrane.

2. *There has been extreme torsion of the appendix.*—In this condition, the blood-supply to the vermiform process having been more or less completely cut off, a gangrene of the organ follows. This gangrene may be very acute, and may involve the entire process, or it may be found limited to the point or points of greatest torsion, and thus the appendix may be found cut into two, or even into three parts, the continuity of the tube being only maintained by sloughing segments. In connection with these forms of the trouble which depend upon torsion, it may be pointed out that distension of the cæcum (by causing a dragging upon the mesentery of the appendix) may encourage twisting of the process, or may aggravate a distortion which already exists. In this way may be explained the part that constipation and an engorgement of the cæcum may play in the etiology of inflammatory processes in the appendix.

3. *A foreign body has lodged in the appendix.*—This condition is not common. In 146 examples of trouble in the appendix Matterstock found a foreign body in 9 instances only.

4. *A primary ulceration of the appendix exists.*—In this connection may be mentioned the ulcer of tuberculosis, and the destructive process associated with actinomycosis.

It is impossible to do more than draw attention to certain isolated phenomena.

(*a*) In the first place it is difficult and often impossible to distinguish from one another the different anatomical varieties of typhlitis. There is, moreover, no constant ratio between the severity of the symptoms and the gravity of the local changes as demonstrated by an operation. The symptoms in two cases may be very nearly alike, and yet the local conditions discovered may differ widely. Adhesions may be dense after three attacks of typhlitis, as in one case, or absent after nineteen, as in another.

(*b*) Perforation of the appendix is spoken of by some writers as if it were the principal morbid change underlying typhlitis.

Cases will show that perforation is by no means so common as has been supposed. A sudden and acute onset of symptoms is no conclusive evidence of perforation of the vermiform process. Acute attacks of abrupt origin are very commonly due to sudden torsion of the appendix, to a strangulation of it, a condition which may soon pass on to gangrene.

(*c*) The majority of the cases of typhlitis get well without any operative interference. Fitz places the mortality of cases treated medically at 11 per cent.

(*d*) It must not be assumed that because an attack of typhlitis is apparently brought about by constipation or errors in diet, it is due to disturbances in the cæcum as distinguished from the appendix. In many instances in which the appendix is found to be solely at fault, the attacks of typhlitis appear to have been in each example definitely due to neglect of the bowels or faults in dieting.

While on the subject of differentiating symptoms, I might mention two isolated facts which have some bearing upon diagnosis. The most severe example of tenesmus I have ever met with was in a boy with gangrene of the whole of the vermiform process. In two cases in which at the operation the ileum was discovered to be involved, diarrhœa had been a conspicuous symptom.

(*e*) With regard to the relapsing form of typhlitis, I have nothing especial to add. It may depend upon trouble in the cæcum subsequent to the lodgment there of fæcal masses or of a bolus of undigested food. But in the very great majority of instances (possibly in 90 or 95 per cent.) it is due to mischief in the appendix. Statistics show that the trouble is more common in males than in females, and is usually met with in adults under 40. In the majority of cases dealt with by operation pus will be found. In fourteen examples pus was discovered in nine instances, and was absent in five. When local symptoms (such as discomfort in the groin and tenderness) persist between the attacks, there is a probability that pus is present. The attacks vary greatly in severity and in frequency, and often grave attacks will alternate with others of comparatively trifling character.

The details of the operation.—The procedure is carried out during a quiescent period, and after all the acute symptoms have subsided. The position of the appendix must be made out, and upon its sight the place of the incision will, to a great extent, depend. In the larger proportion of cases an incision similar to that advised by Mr. Harrison Cripps upon the left side for inguinal colotomy answers well. An imaginary line is drawn from the anterior superior iliac spine to the umbilicus. The incision is about two inches in length, is placed at right angles to this line, and at a point about two inches from the

spinous process. The centre of the incision corresponds to the line. The abdominal cavity is opened, and the appendix is exposed. Adhesions are dealt with in the usual way. If the little process be found to be very closely adherent to such a viscus as the ileum or bladder it is better to cut it off close to its attachment, and then to pare away the fragment still left adhering.

In dealing with the appendix it is well, whenever possible, to make a circular cut through the peritoneum just on the distal side of the spot at which it is intended to sever the process. The peritoneum thus freed is turned back, as is the skin in a circular amputation. The appendix is cut across at the line of the reflected peritoneum. The mucous membrane which presents is scraped away with a sharp spoon. The muscular wall of the appendix is then brought together by means of a continuous suture of No. 1 silk braid. Over the stump thus formed the reflected peritoneum is drawn and secured in place by means of a few points of Lembert's suture. It is needless to say that this procedure is not always possible. The tube may have to be occluded by means of a single ligature, but an attempt should always be made to give to the stump a covering of peritoneum. If the appendix be cut off close to the cæcum, it is sometimes possible to cover the divided end with a flap of peritoneum drawn from the cæcum. In other instances the serous covering required may be derived from that lying over the iliac fossa. In only one instance have I ever found a drainage-tube necessary. In two cases, both of which have been already published, I failed to remove the process. The wound in the parietal peritoneum is finally brought together by means of a continuous suture of No. 1 silk braid passed with a milliner's needle. The rest of the wound in the parietes is closed by silkworm gut sutures. The patient should remain in bed for a full period of twenty-one days.—*British Medical Journal*, *April* 22, 1893, *p.* 835.

52.—APPENDICITIS: AN ANALYSIS OF SIXTY-EIGHT CASES, AND A SUMMARY OF THE CONDITIONS REQUIRING OPERATION.

By Gilbert Barling, F.R.C.S., Surgeon to the General Hospital, Birmingham.

Inflammation of the vermiform appendix often has as its forerunner a catarrh of the cæcum, set up by indigestible food or occasionally by impacted fæces. This leads to catarrh of the appendix with retention of secretion and dilatation, which in

turn sets up an inflammation of the walls of the appendix ; or occasionally cicatrisation of a typhoid or other ulcer at the orifice or in the course of the appendix may induce a similar condition ; or this may be brought about by fæcal concretion or retained foreign body. In a few cases an intense inflammation of the vermiform appendix, with gangrene of part of its walls, is found without any obvious explanation.

Whatever may be its actual starting point, the inflammation varies extremely in its intensity ; often subsiding, never to return, with rest and simple treatment, sometimes setting up a well-defined abscess, at others starting an intensely septic peritonitis, which is terribly fatal.

It is this remarkable variation in its course which has led to such conflicting utterances as to the treatment applicable in cases of appendicitis—on the one hand, physicians claiming excellent results from rest, enemata, and careful feeding ; on the other hand, surgeons quoting their experience of well-formed abscess or perforated appendix with peritonitis as commonly existing, and therefore calling aloud for operation. In an attempt to reconcile these apparent contradictions, I have collected and examined all the cases diagnosed as typhlitis, peri-typhlitis, or appendicitis admitted into the General Hospital, Birmingham, for nearly seven years, beginning in 1885. But few of these have been under my care, and I have to thank my colleagues for permission to use their cases. The total is sixty-eight cases—some of them so mild as to recover in a few days, others requiring weeks and even then relapsing, a few with well-defined suppuration, and several of the fulminating kind ; some of these last perfectly moribund when admitted.

Of the sixty-eight cases seven died, a mortality of 10·3 per cent. This differs widely from the estimate presented by other reporters, being far below the rate estimated by some, and somewhat higher than that of others. Seeing, however, that my cases are compiled from the records of one hospital, it is probably more correct than some others gathered from mixed sources. It is possible, however, that 10·3 per cent. minimises the mortality, as a few of the cases were so mild that they might be excluded from the statistics as doubtful cases. In forty of the sixty-eight well-marked tumour was palpated in the right iliac fossa ; in some of the others tumour probably existed, but the tenderness was so extreme that muscular resistance prevented a thorough examination. With regard to this absence of tumour, it is worth noting that in the most acute perforative cases tumour is only once mentioned, but these were nearly all late cases with distension and extreme tenderness, so that the obstacles to examination were unusually great. Another and rather remarkable point illustrated is that of the

forty cases with tumour only four had well-marked abscess ; all the others with one exception, a relapsing case operated on, recovered without suppuration. Only twice were redness and œdema noticed—once in a case which recovered without suppuration ; in the other, a perforation of the cæcum, there was a well-formed abscess. In three out of the four patients with well-defined abscess of considerable extent, these two characters, redness and œdema, were absent. In two of the four abscesses fluctuation could be detected ; in the two others it could not, the reason being, as operation showed, the extremely dense thickening of the abdominal wall over the pus collection.

The proportion of cases which relapse has been most variously estimated ; of the sixty-eight patients here under consideration five relapsed, three of them twice, one three times, and one four times. Of course some others may have relapsed and found their way to other institutions, but one's general experience of acute conditions such as this is that the patient returns if he feels ill again. I am satisfied that the so-called relapse is occasionally induced by allowing the patient to get about before his disease has resolved ; and I think it is important that a distinction should be drawn between such cases and those in which actual relapse occurs, for which some very definite cause, as retained secretion or impacted hard body in the vermiform appendix, can be found.

Such, then, are the most important facts, presented by a review of the cases in the General Hospital. If these cases stood alone they would be sufficient to show that operation should be the exception and not the rule. It would be much easier to answer the question, What cases require operation ? if one had each individual case before one. In the absence of this it appears to me that cases requiring operation may be classified under three heads :—(1) Those in which pus can be diagnosed with something like certainty ; (2) those in which, from the acuteness of the symptoms, perforation or gangrene of the appendix may be regarded as imminent if it has not already occurred ; and (3) those in which prolonged rest, blistering, &c., fail to prevent relapse.

Class 1.—The characters on which I lay stress for the recognition of suppuration are the presence of a more or less distinct lump in the right iliac fossa, occasionally extending higher than this to the lower part of the lumbar region, increase in the size of this, especially if associated with œdema or suspicion of redness, or with rigor. Fluctuation, if present, of course makes the diagnosis absolute, but delay until it can certainly be made out is most undesirable. When it is absent an increase in and persistence of extreme tenderness is an indication of much value. The temperature, considered in

conjunction with the other signs, is a most valuable guide ; it is distinctly of the hectic type. This temperature record, however, in the face of improvement in other directions, may mislead. Abscess being diagnosed or strongly suspected, what procedure should be adopted for its evacuation? Any exploration with the aspirator or similar instrument is to be strongly discouraged. Incision directly over the most prominent part of the swelling should be resorted to, or, if there be no such distinct guide, then incision about the right semilunar line, the middle of the wound falling across a line from the right superior spine to the umbilicus. As the incision deepens it will often be found that, although œdema of the skin has not been noticed, yet œdema of the subcutaneous and deeper tissues is quite marked. This, together with inflammatory fibrosis of the muscles, will pretty certainly indicate for the comfort of the surgeon that an adherent abscess lies beneath. Under the conditions just laid down as calling for operation, it will generally be found that the abscess sac is adherent to the peritoneum in front, and that the pus is reached without any possibility of fouling the general peritoneal cavity. If adhesion does not exist, however, there should with proper precautions, be very little risk of infecting the surrounding peritoneal surface. Careful sponging should be substituted for any form of flushing or irrigation, which may carry particles of infective material where they cannot escape again. At the bottom of the abscess cavity the deformed and, perhaps, perforated appendix may be found. If it is, and it can be ligatured and snipped off with little disturbance of parts, this should be done. If it is firmly bound down, even if it be perforated, I think it best left alone, and this may be done with the expectation that it will heal eventually, even if a sinus for a time exists. Should the appendix not be easily found, prolonged search for it is to be deprecated. Drainage must be provided, and in one of my cases this was through a counter-opening just above the crest of the ileum, the anterior incision being practically closed.

Class 2 is perhaps the most important because it provides many of the cases requiring operation, and because the mortality in this class is very high. Each case requires most careful watching, so that the time when successful laparotomy may be performed, that is, ere general peritonitis is established, shall not be allowed to slip away. No cases are more difficult to come to a right conclusion about, so that, on the one hand, unnecessary operations may not be performed, and, on the other, interference may not be too late to prevent a fatal septic peritonitis.

The signs and symptoms differ considerably from those of Class 1. There may be no tumour, no hectic temperature, and

there will be no sense of fluctuation, no œdema or redness. As a rule the attack commences acutely, with vomiting, and it may be a rigor. Pain is very severe, and at first may be widely spread over the abdomen, but eventually the right iliac fossa is localised as its chief seat. Tenderness here is very marked, and its chief point in my experience corresponds very closely to that laid down by McBurney, namely, two inches from the anterior superior spine on a line between that spine and the umbilicus. As already mentioned, tumour there may be none, or it is so disguised by muscular resistance that it can only be felt under anæsthesia. In the next twenty-four hours the tenderness may have become even more marked and the pain more distinctly localised unless general peritonitis has supervened. The temperature will be generally elevated, to 102° or higher, from the first, and the pulse will be unduly quick in relation to the temperature, being perhaps 130 with a temperature of 101°. If at the end of forty-eight hours the extreme tenderness remains, the vomiting has recurred, the temperature is still elevated, the pulse quick out of proportion, and the patient's face is ill and painful looking, it will be a great question whether operation shall not be resorted to without further delay. If the patient be a child I would not wait for further development of symptoms, and, whatever the age may be, if there is commencing distension in addition to the other symptoms, the risks of delay are too great to be faced. To sum up concisely, an acute commencement, with vomiting which continues under treatment, increasing tenderness at McBurney's point, fever of two or three degrees, quick pulse, and the first sign of abdominal distension creeping from the right iliac fossa calls for operation even though the case has been in progress only two days. A word as to the general treatment during this early stage. The rest in bed should be absolute, the patient not being allowed out of the recumbent position, and the cold coil should be applied, or at first a few leeches. Purgatives or enemata are in this acute condition very doubtful remedies, and I prefer not to use them. It is necessary to refer a little more to the temperature as a guide in the cases now under consideration. The hectic temperature of the first class will not be present as a rule, but a continuous fever of moderate amount is common—up to 102°, 103°, or even higher. The absence of fever, however, must not be taken to contraindicate operation if the other signs are in favour of it.

Operation having been decided on, an incision is made directly over the appendix, with the knowledge that there will pretty certainly be no adhesion to the anterior wall of the abdomen, and that the general peritoneal cavity will be opened. An incision 2½ inches long is sufficient unless the patient is stout,

and it should be in the semilunar line, with its centre about corresponding to McBurney's point. The only instruments needed, in addition to those required for an ordinary abdominal section, are good broad retractors and an aneurism needle threaded with silk. When the abdomen is opened the cæcum presents, and the fingers must be passed down its inner side in search of the appendix. Before this is reached it is quite possible that a small fœtid collection of pus may be liberated. If so, this should at once be carefully sponged away, the inner margin of the wound being so retracted that, if possible, the operator may see what he is doing. The search for the appendix is then continued. It may be quite free, or it may be the centre of a pus cavity already evacuated, or it may be thickened, distorted, and adherent. No part of the body appears to vary so much in size as the vermiform appendix, and it varies also in position. Generally to be found behind a coil of small intestine just at the inner margin of the cæcum, it may have tucked itself quite behind the cæcum, or it may be found overhanging the brim of the pelvis freely down into the cavity. If it cannot be located, the anterior longitudinal band on the cæcum is a very reliable guide to it. The appendix having been found, if it is free or only moderately adherent, and shows evidence of distension, thickening, or concretion, it should be removed. This may be done by transfixing the little mesentery of the appendix with the aneurism needle threaded with silk, tying one half round the base of the appendix, the other round its mesentery, the appendix being then snipped off with scissors. It has been recommended to stitch the divided peritoneal coat of the appendix over the end of the stump. It is very doubtful whether this can be effected in the majority of cases; certainly I have seen several specimens in which it would have been impossible. Even if possible, experience has shown that cases do perfectly well without it, and, that being so, it seems a mistake to expend time and to disturb the parts more than is absolutely necessary. If the appendix is firmly bound down, the best plan is to trust to drainage alone. Some form of sponge should be used for cleaning away pus or the contents of the appendix, irrigation being avoided for reasons already mentioned.

There are still advocates for exploration by median abdominal incision. Everything is so much in favour of the lateral one when the cæcal region is clearly the starting-point of the mischief, that the median opening appears to me only justifiable under two conditions: (1) When the diagnosis is not clear, the operation being really an exploration; and (2) when general peritonitis exists, the addition of a median opening (in addition to the lateral one) for flushing and drainage adding to the patient's chance of recovery.

Class 3: Relapsing Cases.—None of these requiring operation have fallen under my own care, so that I only bring them under your notice to state completely the case for operation as it presents itself to me. The first point which arises is, What is a relapsing case? A fair definition appears to be, a case which, after apparent complete recovery, lights up again into active disease within days, or at the outside weeks, of the date of convalescence. The second question needing an answer is, Does every such case call for operation? This will be answered differently by different observers. Personally I should wait for a second relapse before resorting to operation, unless the symptoms in the first relapse were of a severe kind. In reference to this question of relapse, it is necessary to emphasise the fact that insufficient rest is responsible for many cases. These are really incomplete recoveries, as apart from relapses, and in them the inflammatory condition has never become really quiescent.

Operation in relapsing cases appears to be best deferred until the acute symptoms have passed away, and the method of carrying it out is similar in detail to those of the acute perforative cases, the appendix being removed whenever it is found distorted, perforated, or the subject of any other pathological change.—*British Medical Journal, April* 22, 1893, *p.* 839.

53.—ON THE OPERATION FOR INFLAMMATION OF THE APPENDIX VERMIFORMIS.

By John Duncan, M.D., Surgeon to the Royal Infirmary, Edinburgh.

There can be no question that the experience of recent years has established the operation for inflammation of the appendix vermiformis as a valuable addition to surgical resources. But there are two points on which the last word will not have been said for many years to come, viz., the time to operate and the mode of operating.

Under the first head we are met by difficulties, because the diagnosis is uncertain between this disease in its acute form and various other abdominal affections. By the accumulation of experience we are gradually gaining definition, but a certain number of cases remain in which the chief features are the symptoms of obstruction of the bowels, accompanied or followed by peritonitis, and in which the signs of localisation are deficient. Fortunately, in most of them the determination to operate is

arrived at through similar considerations, and usually only the mode of operating is influenced by the want of accuracy.

But even when we can attain a fair assurance that we have to deal with a case of typhlitis—and I include under the title inflammation of its appendix—there are serious difficulties in fixing the proper moment to interfere.

We meet with three distinct varieties of the disease, which we may call the diffuse, the localised, and the relapsing.

In the first, with or after more or less indication of origin in the region of the cæcum, there is speedily developed a general peritonitis, which peritonitis may remain adhesive and may ultimately subside, or may pass immediately or quickly into the purulent condition, and then, if left to itself, it inevitably ends in death. The general principles by which one should be guided are sufficiently plain. The moment it is ascertained that the peritonitis is purulent, laparotomy must be performed; and again a patient ought not to be allowed to succumb to the disease without an operative attempt to relieve him of the origin of his danger. I do not intend to discuss the mode of arriving practically at a knowledge of these points. Every one must admit that they involve a most anxious consideration of the most minute details in each individual case, and that we are only beginning to arrive at a due recognition of the value of symptoms. May I merely, in passing, draw attention to the relation of pulse to temperature as valuable, and to doughiness on palpation and on rectal examination as worthy of consideration.

In the second, the localised variety, the guide to operation is the presence of pus. Again the principle is easy, but the practice by no means so simple. Still, the ordinary rules which enable you to detect deep-seated pus in any part of the body are entirely applicable, and it is better to err on the side of operating too soon than to run the risk of the abscess opening into a viscus or the general cavity of the peritoneum.

In the third, or relapsing variety, no hard and fast rule can be laid down. In such cases the patient probably runs comparatively little risk in any individual attack. I have at present under observation several such patients. One, for example, had a tolerably severe attack four years ago, with which he was ill for several weeks; since then, provoked in almost every instance by inattention to the bowels, by exposure, or over-fatigue, twelve or thirteen seizures have laid him up, but each have yielded readily to rest and medicaments. The others present every degree of frequency and severity, up to one in which the attacks are so severe, and follow each other so closely, that the patient for a year has been practically obliged to abandon active life.

In such varieties of the disease one must be guided largely by the circumstances of the patient as well as the severity of the

case,—the ability to put in practice the life of care which is essential to his ultimate cure, as well as the danger which the nature and frequency of his attacks may involve. Plainly, if the determination to operate be arrived at, it is well to do so in an interval of quiet, when the inflammatory action is least pronounced.

Each of these varieties of the disease involve also certain considerations as to the mode of operating.

I am inclined to think that in all cases of the acute variety in which the diagnosis may contain an element of doubt, as well as in all cases where purulent peritonitis is fairly assured, the proper course is to incise, in the first place, in the middle line. This enables you to make an exhaustive search for the origin of the trouble, and allows a more thorough cleansing and drainage of the peritoneum. If it be appendicitis, or anything else requiring a second incision, it is a distinct advantage to have a tube in two places so that by through and through washings septic absorption may be prevented.

Having discovered that the purulent peritonitis is due, as it usually is, to appendicitis, and having in consequence made the usual lateral incision over the appendix, an endeavour must be made to move the source of the inflammation. My experience is that in these cases (a first attack of the acute and purulent variety) it is usually easy to do so. The adhesions are easily separated, the appendix easily recognised, often gangrenous, often with a visible ulcerated opening, often with a concretion in it. A ligature is applied at the base, and the diseased part removed. There can be no objection to stitching peritoneum over the cleansed stump, but in acute cases this is often impossible, and probably is unnecessary in any. I confess that neither in this nor in the other varieties of appendicitis have I been able to assure myself of the true pathology of the disease. Mr. Treves, no mean authority, speaks as if it were almost invariably a matter of kinking, bending, or twisting. There can be no doubt that sometimes it is, but in the majority I have not been able to make it out. In one case the appendix was very short and thick, almost completely occupied by a concretion, its lumen apparently obliterated at the neck, which was hard and somewhat contracted. There was no appearance of twist or bend, and the impression received was that the presence of the concretion was the cause of inflammatory action, and that the swelling resulted in gangrene by pressure at the rigid neck. In another, a relapsing case, the appendix, as long and large as the forefinger, firmly bound down to the posterior wall of the abdomen, stretched away from the cæcum with the gentlest of curves, and no sign of strangulation or twist. In several I have seen a bend possibly acute enough to do harm; scarcely in any a twist sufficient to produce injurious effect. In the majority a concretion has been found.

It must not be supposed that the operation in acute appendicitis is always easy. In some there is the history of a previous attack; and in others, chiefly children, although there be no such history, the operation affords evidence of old inflammation. In a young child whom I saw lately, the previous personal and family history rather inclined me to view it as an obstruction produced by old tubercular peritonitis. On operating by incision in the middle line, the adhesions were such as to render further procedure hopeless. The slight amount of fluid in the peritoneum had a distinctly fæcal odour, so I inserted drainage-tubes and washed out the abdomen. The child gradually sank, and on post-mortem examination, buried in coils of matted bowel, a perforated appendix was found.

In operating in that class of case in which the inflammatory action is localised in the region of the cæcum, the situation of the incision will be determined by the indications of purulent collection, always with a tendency towards the point opposite the anterior superior spine, which experience has shown is most convenient for reaching the appendix. Not that any very strenuous exertion should be made to reach and remove that structure. There is risk by too great energy of opening into the general peritoneal cavity, but if amidst the pus the appendix can be found, it is well to ligature and cut it off.

These localised abscesses, whether peritoneal and localised by matted coils of intestine, being, then, generally connected with the appendix or situated in the cellular tissue, and then truly a perityphlitis, usually may be brought by good drainage to a successful issue.

I have already referred to the conditions which justify operation in relapsing appendicitis, and to the propriety of choosing a period of quiescence for the operation. Very frequently the position of the appendix may then be very distinctly determined by feeling a finger-like process running downwards and inwards towards the pelvis. In some the operation is quickly and easily performed; in others no more difficult operation can be undertaken. As an example of the latter, I may refer to one of the cases in which I was associated with Dr. Affleck, and I do so the more readily because, as is unusual in such, it terminated fatally. A distinct finger-like process could be felt stretching towards the pelvis, but upon incising in the usual place this was found to be a thickened and matted coil of bowel. There had been many inflammatory attacks, and the adhesions were so old and tough, and the complications of bowel so intricate, that their dissection and separation occupied nearly two hours before the diseased appendix was reached.—*Edinburgh Medical Journal*, *August*, 1893, *p.* 110.

54.—AN OPERATION FOR THE RADICAL CURE OF INGUINAL HERNIA.

By William S. Halsted, M.D., Surgeon-in-Chief of the Johns Hopkins Hospital, Baltimore.

More than three years ago I described a new operation for the cure of inguinal hernia in the male. Six or eight months later, Bassini, of Padua, published his operation for cure of inguinal hernia, which he had performed 251 times, with only seven returns and no deaths except one, and that from pneumonia after the wound had healed. Bassini's operation and mine are so nearly identical that I might quote his results in support of my operation.

Instead of trying to repair the old canal and the internal abdominal ring as Macewen had tried to do, I make a new canal and a new ring. The new ring should fit the cord as snugly as possible, and the cord should be as small as possible. The skin incision extends from a point about five cm. above and external to the internal abdominal ring to the spine of the pubes. The subcutaneous tissues are divided so as to expose clearly the aponeurosis of the external oblique muscle and the external abdominal ring. The aponeurosis of the external oblique muscle, the internal oblique and transversalis muscles and the transversalis fascia are cut through from the external abdominal ring to a point about two cm. above and external to the internal abdominal ring. The vas deferens and the blood-vessels of the cord are isolated. *All but one or two of the veins of the cord are excised.* The sac is carefully isolated and opened, and its contents replaced. A piece of gauze is usually employed to replace and retain the intestines. With the division of the abdominal muscles and the transversalis fascia the so-called neck of the sac vanishes. There is no longer a constriction of the sac. The communication between the sac and the abdominal cavity is sometimes large enough to admit one's hand. The sac having been completely isolated and its contents replaced, the peritoneal cavity is closed by a few fine silk mattress sutures, sometimes by a continuous suture. The sac is cut away close to the sutures. The cord in its reduced form is raised on a hook out of the wound to facilitate the introduction of the six or eight deep mattress sutures which pass through the aponeurosis of the external oblique and through the internal oblique and transversalis muscles and transversalis fascia on the one side, and through the transversalis fascia and Poupart's ligament and fibres of the aponeurosis of the external oblique muscle on the other.

The two outermost of these deep mattress sutures pass through muscular tissues and the same tissues on both sides of the wound. They are the most important stitches, for the transplanted cord passes out between them. If placed too close together the circulation of the cord might be imperilled, and if too far apart the hernia might recur. They should, however, be near enough to each other to grip the cord. The precise point out to which the cord is transplanted depends upon the condition of the muscles at the internal abdominal ring. If in this situation they are thick and firm, and present broad raw surfaces, the cord may be brought out here. But if the muscles are attenuated at this point, and present thin cut edges, the cord is transplanted farther out. The skin wound is brought together by buried skin sutures of very fine silk. The transplanted cord lies on the aponeurosis of the external oblique muscle, and is covered by skin only.

Bassini believes that he restores the inguinal canal to its physiological condition, inasmuch as he makes "a canal with two openings, an abdominal and a subcutaneous ; furthermore with two walls, a posterior and an anterior, through the middle of which the spermatic chord passes obliquely." But the original canal is not by any means an affair so simple as Bassini's. To reproduce the equivalent, anatomically and physiologically, of the inguinal canal is, I believe, impossible. Moreover, we do not know that nature has made the best possible provision against hernia in providing, as it does, for the passage of the cord through the abdominal wall. Bassini's operation, although essentially the same as my operation, is different in some respects. (1) Bassini always brings the cord through the muscles at the internal abdominal ring. The point out to which I transplant the cord is determined, as I have said, by the condition of the muscles. (2) Bassini does not excise the superfluous veins. I believe that it is advisable to reduce the size of the cord as much as is practicable. (3) In Bassini's operation the cord lies posterior to the aponeurosis of the external oblique muscle ; in mine, between this aponeurosis and the skin. To secure for the cord the position which Bassini recommends, an additional row of stitches is required. Unless it should be demonstrated by a comparison of the results of the two methods that there is something to be gained by these additional stitches, it would be well for the sake of the wound and the operator to discard them.

Kocher thinks that the methods of Bassini and himself are to be preferred to other methods, Macewen's for example, because they (the former) enable the patient to get out of bed on the eighth day. I fail to see anything in the methods of Kocher and Bassini and myself which might enable the patient to get

out of bed earlier than if he had been operated upon by the method of Macewen. The time to be spent in bed depends upon the judgment of the surgeon, and not, open methods excluded, upon the particular method. Our patients are kept upon their backs for 21 days. Wounds thoroughly healed throughout per primam are not strong in eight days. One can easily tear open a typically healed wound which is not more than six or seven days old.

A wound is certainly stronger on the fourteenth day than it is on the seventh, and stronger on the twenty-first day than on the fourteenth. Just how long wounds of skin and muscle which have healed by first intention may continue to increase in strength we do not know. In our hernia wounds, the subcutaneous ridge of the aponeurosis and muscle which results when the parts have been brought together properly by buried mattress stitches does not disappear entirely for five or six or more weeks. I sometimes question the propriety of allowing, as I do, my patients to walk about on the twenty-first day.

The technique of operations for the radical cure of hernia should be usually perfect, because we have to violate occasionally what I consider to be one of the most important principles of antiseptic surgery. We have to constrict the tissues somewhat with our deep sutures. It is not always possible to bring together the pillars of the external abdominal ring without a little tension. One can, of course, make relaxation cuts, but these would be quite as undesirable as a moderate amount of tension. Our hernia wounds illustrate admirably the danger of constricting tissues. We never resort to drainage of any kind for fresh wounds. And with the exception now and then of a hernia wound, none of our fresh wounds suppurate. Inasmuch as we rarely, if ever, have occasion to constrict tissues in other fresh wounds, it is almost certain that the occasional stitch abscess in a hernia wound is due to tissue constriction plus, of course, the infection. To provide for a good circulation in every particle of tissue in and immediately about a wound is as much a part of our technique as are the ordinary antiseptic precautions. The better the circulation the less the likelihood of suppuration.

Since the opening of the Johns Hopkins Hospital, three and one-half years ago, 82 operations for the radical cure of hernia have been performed, and without a death. 64 of the cases were males, 18 were females. Of the females, 4 had femoral, 13 inguinal, and one umbilical hernia. Of the males, 63 had inguinal and 1 femoral hernia. 5 of the males were operated upon by Dr. Brockway by McBurney's method. Of these 5 cases 2 have recurred ; 2 have not been heard from ; and 1, a boy two and one-half years old, is still well, twenty months after the

operation. The cord in so young a patient is so very small that the hernia might be cured for several years by almost any method.

My operation, with or without modification, was employed in 58 cases. Of the cases which healed per primam not one has recurred. The wounds which suppurated were immediately laid wide open and allowed to heal by granulation For the result in such cases the open method, and not mine, is responsible. There have been 6 recurrences from methods not my own—Nos. 2, 12, 24, 27, 39, 52. No. 2 took cathartics, and got out of bed a few days after the operation. He was discharged for insubordination on the eighth day, before his wound was firm. In No. 12 the cord was not transplanted. In No. 24 a stitch abscess formed several weeks after his discharge. There is a slight impulse, on coughing, at the site of the abscess. In No. 27 the wound suppurated. The stitches were removed, and the wound was laid wide open and allowed to heal by granulation. This patient had a diffuse suppurative inflammation of the neck at the time of the operation. No. 39, the wound was opened for hemorrhage and allowed to heal by granulation. No. 53, the wound suppurated, was laid open, and healed by granulation. The patient has a flabby abdominal wall. The scar has stretched throughout its entire length, and there is an impulse all along the scar on coughing.—*Annals of Surgery, May*, 1893, *p.* 544.

55.—ON A CASE OF HYDROPERITONEUM.

By J. Bland Sutton, F.R.C.S., Assistant Surgeon to the Middlesex Hospital.

It is customary to refer to all collections of fluid in the peritoneal cavity under the term "ascites." Free fluid in the abdomen may arise from abnormal conditions connected with the circulation, such as heart or renal disease, and from obstruction to the portal circulation ; to accumulations of fluid arising from such causes the term "ascites" should be restricted. When the fluid is secondary to disseminated nodules of cancer, ovarian sarcoma, peritoneal warts, adenoma of the Fallopian tubes, or to salpingitis, the collection of fluid should be referred to as "hydroperitoneum." I have had recently a very instructive case in relation to this matter. The patient stated that she was 41 years of age, single, and had ceased to menstruate for five years. She had for many months suffered from constipation, and that difficulty had increased during the past six weeks. The patient looked ill. On examining the abdomen it was

found to be distended below the umbilicus, and although I satisfied myself that there was free fluid in the peritoneal cavity the physical signs were not characteristic of ordinary ascites. On examining the pelvic organs the uterus was natural in size and position, but no tumour was detected through the vagina. On rectal examination a soft mass external to the bowl could be felt pressing upon and narrowing its lumen, but not invading its walls. The patient was advised to come into the hospital. On her admission seven days later, the fluid in the abdomen had considerably increased in quantity, otherwise the physical signs remained the same. The urine was normal in quantity and free from albumen. The patient was examined by a medical colleague, who pronounced her free from cardiac or pulmonary trouble; there was no œdema of the extremities. I invited some of my surgical colleagues to examine the case, but they were unable to throw any fresh light on it and it was deemed advisable to recommend the patient to submit to an exploratory operation. To this she assented without the least hesitation.

The abdomen was opened on February 4th, in the same manner as for ovariotomy, and a large quantity of fluid at once gushed out. On introducing my hand into the abdomen I found the left ovary replaced by a large soft, warty mass, the size of two closed fists. The tumour was carefully withdrawn through the incision, and its pedicle transfixed and tied with silk. I found the right ovary in a similar condition but much smaller. This was removed. The abdomen was then flushed with warm water, and on examining the pelvic peritoneum it was found beset with a velvety mass of soft pink warts, which bled freely when they were rubbed with the sponge. The uterus was small, but otherwise normal. The abdominal incision was closed with waxed silk sutures, the wound dressed, and the patient returned to bed. She made an uninterrupted recovery and left for a convalescent home three weeks after the operation. The tumours were typical examples of papillary cysts arising in that portion of the ovary known as the paroöphoron; the warts arise from the inner walls of the loculi and often grow so luxuriantly and lead to such distension that the walls rupture and become everted, allowing the warty masses to project freely into the peritoneal cavity. In some of the loculi the warts perforate the cyst wall and project partly into the cavity of the cyst and partly into the peritoneum.

On microscopical examination these papillomatous masses will be found to conform to the structure of warts which occur in other situations, but the epithelium which surmounts them is very abundant and easily detached; this explains the abundance of cells found in the fluid which escaped from the abdomen. It frequently happens that surgeons are alarmed when they find

warts on the peritoneum ; they at once regard the case as one of malignant disease ; but there is no ground for alarm, as the warts will quickly disappear after the primary tumours have been removed. In this respect these warts are in agreement with what we know of crops of warts on the skin. They often occur suddenly and almost as suddenly disappear ; indeed, the life of warts is often very transient. So with peritoneal warts ; but as long as the seed-supply continues new warts spring up, last for a time and then die, to be succeeded in their turn by a new crop. Remove the tumour, the supply of germ-epithelium ceases, the warts die and the crop is not replenished. The explanation of the predilection of the warts for the recesses of the pelvic peritoneum is due to the fact that when the body is at rest the detached cells in the peritoneal fluid sink to the lowest level and thus naturally fall into the pelvis. The quantity of cells in the fluid free in the abdomen in these cases is very great ; hence, had we removed a small quantity and examined it under the microscope, it would have led us to believe that this woman was suffering from a cancerous tumour; but my investigations have taught me to place very little reliance on the microscopical characters of fluid removed from the abdomen in cases of hydroperitoneum, and for some years I have disregarded this method as an aid in diagnosis.—*The Lancet, April* 8, 1893, *p.* 777.

ORGANS OF THE RESPIRATORY SYSTEM.

56.—ON TRACHEOTOMY IN CHILDREN.

By Bernard Pitts, F.R.C.S., Assistant Surgeon to St. Thomas's Hospital.

The high operation is now almost universally practised in England for children suffering from œdema of larynx from scald, simple inflammation or diphtheritic inflammation of larynx, difficult breathing due to papillomata, or for foreign body impacted in the larynx—the low operation being reserved for cases of foreign body in trachea or bronchus, and possibly for certain tuberculous and syphilitic affections of the larynx.

Unless contraindicated by the condition of the patient, a little chloroform should be given, since its administration assists the operator considerably, and is not dangerous to the child, if it be

given sparingly and with judgment. The surgeon should have by him, not the regulation two pairs of compression forceps, but half a dozen, just as if he was going to do any ordinary operation. After the skin and fascia have been divided, the point of the knife is not necessary until the pre-tracheal fascia is reached, which must be divided, so as thoroughly to expose the tracheal rings. Keeping exactly in the mid-line, the tissues are easily separated with the metal handle of the knife (as now constructed). I fully agree with Whitehead that an ordinary director is too sharp an instrument, and likely to cause bleeding, but the use of a special elevator is unnecessary, and might induce the operator to use undue force, and press upon the soft and yielding trachea, and it is obviously an advantage not to change from knife to elevator. The trachea having been freely opened, and dilating forceps introduced, the operation is at an end, if hemorrhage has been previously arrested by the compression forceps; at least there is no necessity for the hurried attempts to introduce a tube.

Having had the opportunity of watching a great many house-surgeons in their earlier tracheotomies, the chief dangers have seemed to me to arise from too small an opening into the trachea, and too great a hurry to introduce the tube.

Sometimes the edges of the trachea opening are bent in, the tube perhaps passed into a space in front of the trachea, or between the cartilages and their mucous covering, or the tube passed into the trachea carries membrane before it. Time is then wasted in artificial respiration, and all is excitement and anxiety; the very efforts made to relieve the child only increase the respiratory difficulty. Occasionally the tube is not at hand, and the operator's thoughts are directed to the tube instead of the patient. After making the incision into the trachea, either the dilating forceps should be introduced or the sides of the opening held apart by hooks and the operator should make absolutely certain that he has opened the trachea, and that it is not blocked by membrane or foreign body. Blood should be permitted to escape by coughing, and any imprisoned contents removed. The tube can then be inserted with gentleness and deliberation. Before commencing it is important to have the legs and arms sufficiently controlled by bandages, so that the struggles of the child during the later stages of the operation, and when the chloroform effect has ceased, may not interfere with the manipulations. The arms should, however, be secured in such a way that they can be instantly released for the purposes of artificial respiration. Many of the details of the operation need not be referred to, since they are given at length in all text-books. Retractors may be used at the discretion of the operator. If he has good assistants who

will use them properly, and not pull the trachea out of place, they may be employed with advantage; but with unskilled assistants the surgeon had far better trust to his finger and thumb on either side of the incision. The isthmus of the thyroid may require division, and this in children gives rise to no trouble if clamped on either side by forceps.

The tube in general use at St. Thomas's Hospital is that devised by Durham, and since its adoption the ulceration on the anterior wall of the trachea, which formerly was constantly found at the post-mortem examination, is of rare occurrence. Parker's tube is more simple and less expensive, and is in general use at the Children's Hospital, Great Ormond Street. Morrant Baker's rubber tube may be substituted a few days after operation if the secretions are normal, and in diphtheria if membrane has ceased to form.

The great increase of late years in the number of cases admitted into hospitals suffering from diphtheria is very striking, more especially since the various fever hospitals now take in a considerable number of cases.

The great variation in the mortality, according to the severity of the epidemic, renders the statistics of results after tracheotomy or intubation most misleading unless given for a number of years in succession. For months together the results may be discouraging in the extreme; at another time, under the same conditions of operation and nursing, recovery will be the rule rather than the exception. One house-surgeon commences his experience with a dozen fatal results, whilst another has five or six recoveries running. Success in tracheotomy for diphtheria depends very largely on the treatment after operation.

In a depressing disease like diphtheria it is most important to keep up the powers of the patient, and nasal feeding is far more efficient than the giving of nutrient enemata. Much of the treatment advocated in text-books is apt to be overdone, particularly the routine employment of the tent bed and steam spray.

It is quite pitiable to see children fighting for their lives under such enervating conditions. The air of the room should be kept pure and at an even temperature of 65°; above all, the bed should not be placed near a hot fire, with the spray from a kettle constantly playing over the face and body. A sponge kept warm and moist should be always over the tube, and the inner tube changed every hour, or even oftener, whilst the discharges are thick. A great deal of harm may be done by a too zealous nurse, especially by the constant introduction of a feather to clear the tube, and by attempts to thus extract membrane from the trachea. If actual obstruction takes place

it is better for the surgeon to take the tracheotomy tube out altogether, and examine the trachea before replacing it.

When membrane is present on the fauces or pharynx, the use of perchloride of mercury by means of a hand spray appears to be more beneficial than solutions of bicarbonate of soda, borax, or phosphate of soda.

At the Great Ormond Street Hospital a mercury solution, of the strength of 1 : 4,000 has been employed by Dr. Collier in some seventy cases, without producing any signs of irritation or evidence of mercurialism. Concerning the details, he writes to me as follows :—"In using the hand spray it was found necessary to use a tongue depressor, because, however willing the patient was, the solution did not thoroughly reach the posterior pharyngeal wall unless the tongue was depressed. Each spraying procedure lasted from two to four minutes, including a pause for a few seconds at the end of each half minute, and the quantity of solution used was about ℥j. While membrane continued to be evident, the application was made every three hours ; it was then continued for a day or two, at intervals of six hours.

"In nasal cases the nose was douched with warm boracic solution every three hours, and was sprayed with mercury solution after each douching.

"The tracheotomy wounds were sprayed every two hours with the mercury solution, care being taken that no solution entered the tube."

Emphysema is not so common a complication after tracheotomy, since the high operation has become the established practice, and the wound is left freely open.

When the opening was made in the lower part of the neck and the more separated layers of fascia opened up, emphysema, by spreading to the anterior mediastinum, was sometimes a serious complication, both by its mechanical effects and by preparing the way for a diffuse inflammation.

Diphtheritic invasion of the wound may lead to extensive sloughing, both of the soft parts and the tracheal rings, the tube should then, if possible, be dispensed with and warm antiseptic dressings applied. If recovery take place it is likely to be attended with troublesome stenosis of the trachea from after-contraction of the cicatricial tissue.

Extensive hemorrhage after tracheotomy for diphtheria is now fortunately of rare occurrence. The old-fashioned, greatly curved tube, inserted low down in the trachea, frequently caused ulceration of its anterior wall, and the large vessels in the neighbourhood were endangered.—*British Medical Journal*, *July* 15, 1893, *p.* 107.

57.—ON INTUBATION OF THE LARYNX.

By Bernard Pitts, F.R.C.S., Assistant Surgeon to St. Thomas's Hospital.

Intubation is invaluable as a help in the treatment of chronic stenosis, and O'Dwyer's tubes are undoubtedly the best adapted for the purpose. Intubation may also be of value in cases where the condition of acute obstruction is likely to be of short duration, and when there is no reason to think previous ulceration of the larynx existed. It may be of use also as a means of diagnosis when it is uncertain whether the dyspnœa arises from obstruction in the upper air-passages, or to some condition affecting the tubes lower down, for example, pressure from mediastinal tumour, bronchitis, &c.

Intubation for laryngeal diphtheritic obstruction does not seem to make much progress in general favour in England. It is not my intention to go through the oft repeated arguments as to the respective merits of intubation and tracheotomy, but rather to point out some of the causes which have prevented intubation from a more extensive trial in this country. The treatment of diphtheria (in its surgical aspect) in our hospitals is for the most part carried out by the resident staff, and every six months or a year this staff is changed. Students are taught nothing about intubation in most of the text-books; not unnaturally the operation of tracheotomy, concerning which they have heard and thought a good deal, presents many attractions.

In America and in many parts of the Continent, however, intubation has been very largely tried by the medical officers in continuous charge of the diphtheria hospitals, and with results which certainly command grave attention. The operation of passing an intubation tube in a young child without chloroform, with a swollen and inflamed condition of the parts is not an easy one, and requires constant practice, and much thought and attention to detail. Without special study tracheotomy is undoubtedly the safer operation. It is not, however, the difficulty, but rather the want of familiarity with the use of the instruments which often determines the hospital resident against intubation. In young children the epiglottis is not always easy to feel, but the artenoid cartilages can always be defined. When intubation first began to be practised it was thought that it might be tried in all cases; and if the progress was unsatisfactory tracheotomy could be substituted, and in fact converted into an easy operation, with the intubation tube as a guide to cut down upon.

The mortality after such secondary tracheotomies was so terrible that not unnaturally operators became discouraged and wished they had performed tracheotomy in the first instance; and this has had a great deal to do with the present lack of confidence in intubation. It does not, however, by any means follow that this mortality is consequent on the previous intubation, but rather on the fact that cases which are sufficiently progressive or malignant as to be unrelieved by intubation are pretty certain to die under any circumstances. At St. Thomas's Hospital out of 18 cases of intubation followed by tracheotomy, only 2 recovered.

Taking the fatal results: in 6 tracheotomy was done within a few hours of first intubation, and in 10 after an interval varying from one to nine days; so that all died, when intubation was at first followed by improvement, and tracheotomy was performed later.

The cases in which intubation alone was done were 35 in number, with 10 recoveries, or 29 per cent. If we add to these the 18 in which tracheotomy had subsequently to be performed, we have 53 cases with 12 recoveries, or a little over 23 per cent.

There were during the same period 110 treated by tracheotomy alone, with 32 recoveries, or rather more than 29 per cent.; or, adding the 18 cases which were first intubated, 128 tracheotomies with 34 recoveries, or 26 per cent.

When considering the position of intubation in 1890, I could point to 30 cases at St. Thomas's with 40 per cent. of recoveries, I then stated that from so small a number it was impossible to speak with any confidence, but that this method ought to receive most serious attention, and I maintain still that we are justified in giving an extended trial to intubation in diphtheria. With increased experience and better selection of cases suitable for intubation treatment there is every reason to hope for better results.

Examination of the post-mortem notes of the cases, fatal after intubation alone shows 1 case of slight ulceration of larynx, 2 of extensive ulcers, and 1 a healed ulcer of trachea. In 11 membrane was found to extend from trachea to small bronchi; in 3 membrane was found in larynx and trachea alone. Broncho-pneumonia or collapse of lung found in all except the case of gangrene of lung.

For the sake of comparison I have looked through the post-mortem notes of 18 cases of diphtheria in which tracheotomy alone was done; the cases are not selected, but consecutive ones in the years 1890 and 1891. In 14 membrane was found from larynx to small bronchi; the lungs either collapsed or in condition of broncho-pneumonia in 11, and stated to be normal in 1;

emphysema of neck and anterior mediastinum in 1 : in 1 wound infected and membrane from wound to small bronchi ; in 1 membrane in larynx and pus in trachea and bronchi ; membrane in larynx and trachea, 1 case.

I was quite prepared to find that in the tracheotomy cases membrane would have been less in evidence, from the better chances afforded for its escape. It is, however, quite clear that the main cause of death in diphtheria is extension of membrane downwards, whether the treatment be by tracheotomy or intubation.

After a careful consideration of the post-mortem records of uncomplicated cases of diphtheria—treated by intubation at St. Thomas's Hospital, Great Ormond Street, and the Victoria Hospital for Children—I am satisfied that extensive ulceration is quite exceptional. I have heard of a case in a provincial town, where, although recovery took place (after subsequent tracheotomy), permanent occlusion of the larynx resulted. This condition of complete occlusion has, however, followed recovery without any intubation.

At Great Ormond Street Hospital for Children the first trial of intubation in diphtheria was very unfortunate. Eleven cases were intubated in 1890, with 1 recovery. It is only fair to add that, owing to the bad results obtained at first, intubation was reserved for those cases which seemed least likely to recover. During 1891 and 1892 no diphtheria cases were intubated, but lately the method has been tried again with considerable success.

In the second series we have 11 intubations with 3 deaths, or over 72 per cent. recovery. In 2 of the cases, however, there was no certain evidence of diphtheria, but in one intubation was only done just before death, to relieve the distress of dyspnœa ; and in the other two fatal cases tracheotomy had also been performed. If to these we add the 11 intubated in 1890, we have a total of 22 cases with 9 recoveries, or, notwithstanding the unfortunate commencement, over 40 per cent. recovery return. This shows that the trial has been fully justified, and I do not wish to prove more. My own feelings are in favour of tracheotomy as a routine operation for the relief of obstructed breathing in diphtheria, but I believe that equally good results can be obtained by intubation, and that the nature of the case, the surrounding conditions, the age of the patient, and the previous experience of the surgeon, and the consent of the friends, must be the chief factors in determining the choice of method.

Cases of a very malignant type, particularly those which arise in the course of scarlet fever or measles are unsuitable for intubation, chiefly from the great tendency of the larynx to

become ulcerated by pressure of the tube. In all cases where membrane is very extensive in the mouth, and there is a suspicion of extension below the larynx, early tracheotomy would seem advisable.

Tracheotomy under 2 is so very fatal that intubation would seem to offer the better chance if the larynx only is affected. In the Great Ormond Street cases 3 of the children were under 18 months old, and yet 2 recovered.

Since writing these remarks, I have asked Dr. Collier, who has been responsible for part of the first series and all the second series of intubation cases at Great Ormond Street, to give me his views from the experience gained, and he has kindly given me the following clear and definite statement :

Intubation of larynx is not a suitable procedure when laryngeal diphtheria is accompanied by diphtheria of pharynx or of naso-pharynx.

1. The air thus supplied to the lungs, passing over the diseased surfaces, is impure, often foul, and, if not producing diphtheritic bronchitis, may produce broncho-pneumonia of the type of "cut-throat lung."

2. The obstruction is often not only laryngeal, but supra-laryngeal also.

3. The local treatment of the nose and pharynx is very difficult owing to choking.

4. It is in this class of cases that the feeding of a laryngeal intubation case is so difficult.

Intubation of the larynx is not to be done when one believes that there is membrane in the trachea.

1. Here apparently easy breathing usually results for a time ; but, while inspiration is relieved, the membrane acts like a valve over the end of the tube during expiration, and in this way extraordinarily rapid acute insufflation of lung is likely to occur. I have seen a chest become, in the course of eight hours, extremely barrel shaped, with cardiac dulness quite hidden.

2. The expelling of membrane is extremely difficult, and usually attended by ejection of the tube.

Dr. Collier would prefer to do intubation in all cases of primary laryngeal diphtheria unaccompanied by supra-laryngeal obstruction, and without evidence of existence of membrane in the trachea ; in all such cases, indeed, as were called until recently "membranous croup." Sometimes a case presents itself with signs of acute laryngeal obstruction sufficiently urgent that immediate interference is required, but without any evidence of membrane. Such a case usually turns out to be diphtheritic, but it may be a non-membranous laryngitis from measles, or perhaps from cold or other cause.—*British Medical Journal, July* 22, 1893, *p.* 174.

ORGANS OF URINE AND GENERATION.

58.—THE TREATMENT OF STRICTURE OF THE URETHRA.

By F. A. Southam, F.R.C.S., Surgeon to the Manchester Royal Infirmary.

During the last three years sixty cases of stricture of the urethra have been under treatment in my wards at the Manchester Royal Infirmary. Of these, twelve were admitted with retention, and three with extravasation of urine, most of the remaining forty-five being sent in from the out-patient department, as their cases were found unsuitable for treatment while attending the hospital as out-patients.

In five of the twelve patients suffering from retention, suprapubic aspiration of the bladder was performed with satisfactory results: in the other seven, the retention was relieved by the usual treatment, opium and a warm bath. As regards the stricture itself, the following was the general course of treatment which was followed out. In every instance, where the stricture was pervious to instruments, an attempt was first made to cure it by gradual dilatation. If, however, after a fair trial, the stricture refused to, or did not readily dilate, then internal urethrotomy was performed, recourse being had to external urethrotomy only in those cases where no instrument could be passed through the constriction.

Gradual dilatation.—Gradual dilatation was successfully effected in twenty-nine cases, olivary bougies being passed until the stricture would admit a No. 5 (English size), Lister's sounds being afterwards employed, commencing with No. 5-8, and gradually increasing in size up to No. 9-12. As this treatment is frequently carried out by the dressers under the supervision of the house-surgeon or myself, I make it a rule never to allow a fine metallic instrument to be used, on account of the risk of producing a false passage.

Internal urethotomy.—Internal urethrotomy was performed in sixteen cases, where the stricture being resilient or irritable did not yield to gradual dilatation—in every instance with a most successful result. The instrument used was Teevan's urethrotome, screwed on to a filiform bougie, or "ferret," passed as a guide through the stricture, which was divided from before backwards along its upper wall. In every case, preparatory to operation and while a preliminary attempt was being made to dilate the stricture, the urine (which, if not alkaline, was

generally neutral or only feebly acid, often containing more or less pus) was sterilised by putting the patient upon a course of salol or boric acid. At the same time to relieve the cystitis, which is usually present to a greater or less extent in severe cases of stricture, absolute rest in bed was enforced, and a warm bath given night and morning; while to diminish any tendency to congestion of the parts about the stricture, the bowels were kept freely open by means of small doses of magn. sulph. given three times a day. The operation was always performed with careful antiseptic precautions, care being taken that the instruments used were perfectly clean. Before the introduction of the urethrotome, the urethra was injected with carbolic oil.

After the division of the stricture and its dilatation with Lister's sounds, Nos. 9-12 to 12-15, all the urine having been drawn off, the bladder and urethra were washed out with boric acid lotion, and an iodoform bougie was then introduced into the urethra and left in contact with the wound at the seat of division of the stricture. No catheter was afterwards retained in the urethra, and no instrument was passed until the third or fourth day, when a Lister's sound No. 9-12 was introduced into the bladder, and this was repeated each morning until the patient left the hospital, which he was usually able to do at the end of about a week from the date of the operation. Performed with these simple precautions, and in suitable cases, internal urethrotomy is almost absolutely free from risk, for I have never seen it followed by hemorrhage, nor by the severe attacks of urinary fever, characterised by rigors and high temperature, which so frequently occurred in the days when antiseptics were not employed, and which were doubtless due to absorption through the wound in the urethral wall of septic or toxic elements present in the urine.

External urethrotomy.—External urethrotomy was performed in 15 cases. In three instances, where the patients were suffering from extravasation of urine upon admission, a modified Cock's operation was at once performed, the urethra being opened behind the stricture, which was at the same time also divided from the perineal wound. In the remaining 12 cases the stricture was impervious to the finest instrument, not admitting even a filiform bougie, and it was not until attempts at catheterism, repeated at intervals of two or three days, often for several weeks, had proved unsuccessful, that recourse was had to external urethrotomy.

In each case an attempt was made to perform Wheelhouse's operation, which consists in opening the urethra in front of the stricture, passing a fine probe-pointed director through it, and, guided by this instrument, the constriction is divided from the perineal wound. My experience of this operation agrees with

that of Mr. Jacobson, who says: "I have found the hitting off of the mouth of the stricture to be a less simple matter than would be gathered from Mr. Wheelhouse's account." Mr. Treves also writes: "There is often some difficulty in detecting the orifice of the stricture, the operation being one which requires "infinite patience." In several cases it was impossible to find the mouth of the stricture, so that it was necessary to open the urethra behind the constriction (as in Cock's operation), and then to divide it by cutting forwards on to the end of the staff.

In 4 of the 12 cases of external urethrotomy, the operation was followed by a fatal result, and in 3 this was readily accounted for by the state of the kidneys, which were extensively diseased, being typical examples of the conditions usually described under the general term of "surgical kidney." In the fourth case death was due to pelvic cellulitis spreading from the perineal wound.

As, whatever the treatment, a stricture is sooner or later sure to relapse unless it is occasionally dilated, the patients were in several instances taught to pass a catheter before leaving the hospital in order that they might be independent of surgical assistance in the future; and when this was found to be impracticable, they were directed to come to the out-patient room from time to time for the purpose of having an instrument passed.—*British Medical Journal*, *April* 1, 1893, *p.* 692.

59.—ON MEMBRANOUS DESQUAMATIVE URETHRITIS.

By W. H. Battle, F.R.C.S., Assistant Surgeon to St. Thomas's Hospital.

The disease which is described under the above heading is a very rare one, and I have been unable to discover any account of it or of a similar case in the surgical literature of this country. It is apparently characterised by the formation in the urethra of epithelial casts which are shed during an act of micturition. Although the formation of these casts is due to inflammation, it does not appear that the process is necessarily accompanied by the usual evidences of inflammation, for in the patient whose case is described there was no sign of swelling of the mucous membrane or of anything like mucous or purulent discharge from the urethra. The process is one which resembles the desquamation of the skin which follows scarlet fever, but limited to one of the mucous canals, the membrane being composed of the usual epithelial lining of the part. The process is, however, much more active than that alluded to, for a large cast was formed in

the twenty-four hours, and this came away completely when the man passed urine after getting up in the morning. From the account given the cast began to protrude when the stream of urine commenced to flow and usually came away without any other assistance. The almost complete absence of pain proves that the mucous membrane was covered with a layer of epithelium beneath the cast when the latter was formed and ready to separate. There is no relationship between this disease and a diphtheria of the urethra, which is also a very rare but very fatal disease, the onset of the latter being accompanied with an acute local inflammation and severe constitutional disturbance.

The patient, aged forty-four, was first seen by me on March 26, 1892. He was a stoutly-built, healthy man, rather below the medium height, but appeared somewhat worried and anxious. He said that seven years ago he began to suffer from a feeling of aching and bearing down in the perineum ; there had never been any pain, but a feeling of "weary aching." For a similar time he had noticed a small lump in the perineum which had not changed its characters. About four years ago he had an attack of gonorrhœa which lasted a month, followed by more aching in the perineum and soreness. There was no history of syphilis. He had suffered from rheumatic fever when six years old and occasionally from rheumatism, otherwise he had been healthy. As to his family history, his father is alive and healthy, being aged seventy-six ; his mother died from dropsy, aged sixty-six ; he has four sisters and five brothers, all healthy. He presented nothing abnormal on examination. There was no gleet ; the urine, which was normal, contained no albumen. A No. 10 bougie met with slight resistance in the membranous portion of the urethra, but passed satisfactorily. He admitted that his digestion was faulty ; he always suffered from sleepiness after meals and slight eructations, but had a good appetite and the bowels acted regularly. He was low-spirited and without energy. He said he had been in a country hospital, but without benefit. He was admitted into the Royal Free Hospital, on March 28th, for observation. The treatment consisted of tonics, good food and the application of liquor vesicatorius to the perineum on two occasions. Here he was examined with the urethroscope, but with the exception of a small red patch of somewhat granular appearance in the membranous urethra nothing abnormal could be seen. On April 12th, Mr. E. Solly passed solid steel bougies, the patient being under an anæsthetic ; a large size passed easily. In the evening he had a rigor, the temperature rising to 101·6°, During his stay in the hospital he had an attack of tonsillitis, the temperature being 102·4°, followed for about a week by rheumatic pains in his limbs. He left the hospital on May 9, stating that he was much better, and he was more cheerful.

For a time he was certainly better, but suffered from lowness of spirits and had the feeling of weight in the perineum. On December 14, he wrote to me stating that he had been very sore for some time and was sending by post some things like dead skin which had come away with his urine. These proved to be numbers of well-formed membranous casts, shrivelled, brownish-white in appearance, and varying from two inches to three and a half or four inches long. They were always passed the first thing in the morning and began to come away at the commencement of the act of micturition ; they were of the diameter of the urethra. This condition continued for some six weeks and then ceased for a few days ; it then recommenced and continued until the end of January, 1893. Altogether he was passing these casts for a period of nearly three months. On February 14, he was admitted to St. Thomas's Hospital ; he still complained of soreness in the perineum, with a feeling of weight, and appeared depressed in spirits. There was no difficulty in micturition, no increase in the amount of urine passed, nor increased frequency of passing it. The urine was of sp. gr. 1020, slightly alkaline, and containing phosphates and a trace of albumen. Under the microscope an abundance of stellar phosphatic crystals were to be seen and occasionally a uric acid crystal with a few epithelial scales. The prostate was not enlarged and was normal in consistency. There was no urethral discharge or inflammation of the mucous membrane. He brought some casts with him, these were less perfect than those which he forwarded in December, being somewhat shorter, deficient in formation and more irregular at the extremities, a probe passed along the lumen being usually visible for a part of its course. The house-surgeon, Mr. Waine-wright, mounted portions of a cast for me and microscopically they were found to consist of a membrane of columnar epithelium usually one or two layers in thickness, amongst which are seen numerous white corpuscles. I had refused to perform any cutting operation, although repeatedly requested by the patient to do so, as he felt certain that nothing else could relieve him. Although assured that the lump which he could feel in the perineum was only natural (the bulb) he persisted in his desire for an operation. Thinking that perhaps an incision into the perineum would do much to relieve his mental condition, I performed perineal section on March 2, and examined the interior of the urethra and the bladder without finding anything abnormal. The prostatic urethra, however, appeared to be somewhat rigid ; there was no membrane, but the mucous membrane of the membranous part of the urethra felt slightly rough. The wound readily healed, and during the time that it remained open the man felt relieved. When he began to get about after it had closed he complained of some heat and discomfort in the perineum. He left the

hospital on March 28, and I have not since heard from him. During the time he was under observation he passed no casts, but there is no reason to doubt that those shown by him came from the urethra.

The formation of casts in the bowel and their passage per anum is well known. There is an example of the formation of membranous casts in the bladder and urethra in a specimen in the museum of Addenbrooke's Hospital, as Sir G. M. Humphry has kindly informed me ; there is, however, no history with the specimen and I do not know of any other in our museums. Pajor reports two cases, arising in both instances in persons who a long time before had had gonorrhœa. "In both of them recovery occurred after the shedding of a cylindrical, fine, white, fibrous membrane. The membrane in each instance appeared to involve the entire length of the urethra. Strangury and local pain and burning, with sexual depression, seemed to be the main symptoms. Treatment did not seem to modify the duration of the malady, which lasted a month in the first case and something more than five weeks in the second." These cases resemble closely the case here recorded, there being a history of gonorrhœa, and great depression, with some burning in the urethra, but my patient did not complain of strangury, and the passage of casts went on for a longer time (three months).

Hancock mentions a case under his care in which membranous layers formed in the urethra and caused an obstruction to the outflow ; there were, however, no casts passed in the urine. Mr. Evans, of the Royal Free Hospital, has kindly furnished me with some abstracts from accounts of cases referred to by Pajor, in which there was the formation of casts in the urethra of more or less perfect character. Zeissl gives only one case. A robust patient, aged thirty-two, had a first attack of gonorrhœa a year before, and after it had remained untreated for four weeks he cured it himself with a solution of corrosive sublimate. A year later he was again infected, and after a week without treatment he once more used a solution of corrosive sublimate (fifteen grains to eight ounces) for a fortnight, and then came to Zeissl. At the meatus was occasionally seen a drop of yellowish white gonorrhœal secretion, and, an injection of spring water having been used, there appeared in the urine many little isolated cuticular flakes, about an inch in length and curled up. No pain was felt, but merely an itching in the angle between the penis and scrotum. When this itching grew worse there was a thin, clear, white, sticky discharge from the urethra, with collodion-like masses of mucus ; this was first thought to be prostatic secretion, but later was considered to be mucus from the bladder. Balsam and lime-water and astringent injections had very little effect, and so Zeissl cautiously passed deeply into the urethra a

moderately large conical rubber bougie and left it in for a few minutes. The bougie was removed, and a cold-water injection was given ; almost immediately afterwards there was discharged a thick, clear white membranous flake, about an inch and a half long and half a line broad. Some days afterwards he recommenced the introduction of the bougie, and again soon afterwards there was expelled with the urine a tubular silvery-white membrane, very delicate, but as long as before. (Dr. Wedl considered the first to be of the nature of a fibrinous exudation, but in the second epithelial cells were included in the structure.) The bougie was used once more, and the patient recovered. Pitha says "croupous exudations are sometimes formed in such thick plates that the lumen of the urethra is completely obstructed, and complete retention of urine results." He mentions that he had recently met with such a case in a patient with stricture. Grünfeld says that he had an opportunity of examining with the urethroscope, and found a peculiar form of disease of the mucous membrane. The meatus was narrowed by œdematous swelling ; he found on the floor of the urethra a somewhat thick layer of pus, and band-like strips of exudation came away one-half to two millimetres wide. The exudation was very firmly attached to the underlying mucous membrane. It was chiefly the anterior part of the urethra which was affected. In all his cases there were very acute symptoms, such as œdema of the prepuce and lymphangitis. Oberländer mentions a case of membranous urethritis. It was not at all acute in its symptoms and there was no pain. The membrane was situated as a rule in the second half of the penile portion of the urethra, near the bulb. It was white and firmly attached. The patches lasted as a rule for about a month and grew gradually smaller. He looks upon the change as one of cornification of the mucous membrane and as analogous to leukoplakia of the mucous membrane of the mouth. He quotes no cases.—*The Lancet, August* 5, 1893, *p.* 302.

60.—ON TUMOURS OF THE BLADDER AND THEIR TREATMENT.

By E. Hurry Fenwick, F.R.C.S., Surgeon to the London Hospital.

[The following excerpt is taken from a clinical lecture on one hundred cases of tumour of the urinary bladder :]

For my present purpose I shall consider tumours of the bladder under their simplest clinical divisions—that is, according to their benign or malignant character. As the vesical

tumours encountered in childhood are very rare, mostly of the sarcomatous type, always inoperative and invariably fatal, my remarks will refer to adult life of both sexes.

Tumours of the bladder, like similar formations of other mucous surfaces, vary greatly in their rapidity of growth and destructiveness. We are able to recognise a succulent form of epithelioma of the mucous membrane of the bladder which, in its initial symptoms and in its comparative torpor resembles the various forms of villous papilloma for a short period. This fact compels us to subdivide malignant growth, and to form three groups :—(*a*) Benign tumours, papillomata ; (*b*) succulent epithelioma of the mucous membrane ; (*c*) denser, rapidly destructive epithelioma invading the muscle wall almost as soon as the mucous membrane. Benign tumours may be placed as occurring in 20 per cent. of all cases.

Clinical History.—Each of these three groups possesses a well marked clinical history. Now the onset symptom, or group of symptoms, which first attracts attention to the urinary organs, does not herald the birth of the growth. The onset symptom really marks the termination of the first stage of the existence of the tumour. In nearly every case of tumour which I have cystoscoped within a few weeks of the commencement of the symptoms I have found the growth to possess a surface characteristic of the type to which it belongs, and to be of a size above that of a monkey nut. Again, in examining cases by the cystoscope on the recurrence of the symptoms after operation, I have found that the hemorrhage only appears when the tumour has reached a decided size. Tumours have, moreover, been met with by chance in the post-mortem or dissecting rooms, and it has been ascertained that they had given rise to no symptoms during life ; the patient having succumbed to some other disease before the first stage of the tumour had been passed through. This first stage may be conveniently called the "latent" stage.

The latent period is brought to an abrupt termination either by the appearance of blood in the urine, or by the sudden development of irritability of the bladder and pain on micturition. Most writers since Gross have laid stress upon the character of these onset symptoms as being indicative of the nature of the growth, and have asserted that the appearance of hæmaturia points to a benign character, but that vesical irritability reveals a malignant type. We now know this to be a mistake, for the softer forms of epithelioma bleed some months before they commence to infiltrate.

We possess accurate facts which permit us to assert that 92 per cent. of benign growth and a large proportion of malignant growth mark their transition from their latent

first period to the second period of their existence by the appearance of blood in the urine. The importance of this statement cannot be over-estimated when we remember that it is only in these two classes of tumour that operative procedure is indicated and advisable. The third and infiltrating group, which starts with cystitis, is quite inoperative. We shall therefore confine our attention strictly to the first two groups.

The onset hemorrhage from a benign growth differs sometimes from that caused by a succulent epithelioma of the mucous membrane. In the former the loss is generally slight, consisting most often of a few drops of blood at the end of a clear micturition, or of a single evacuation of rosy coloured urine. Its advent is nearly always causeless. In epitheliomata, however, the patient often attributes the onset to a strain, to jolting in a conveyance, or to over-fatigue. The onset hemorrhage is not infrequently more profuse. Both hæmaturias, however, share this characteristic, that they are at first painless and unaccompanied by vesical irritability, unless, of course. there is retention or blockage from clot. The hemorrhage is intermittent in both groups, but in the benign the intervals of perfect health and normal urine are longer than in the epitheliomata in the proportion of years to months. It is, however, not the only symptom in the second period. Should the papilloma become pedicled, or should it tend by its position to obstruct the free outflow of urine, other symptoms will be superadded to the hæmaturia, such as obstruction to the stream, straining, and pain at the end of the penis. It is usually rare for this to occur within the first two years. Sooner or later both forms of growth will enter upon their third period—namely, that in which cystitis appears as a complication.

In benign tumours the third period may be delayed for fifteen, or for twenty or more years ; but once cystitis has set in, renal complications are apt to supervene, and the operation for removal has but an indifferent chance of success. With the epithelioma the advent of the third stage is of course much more rapid. The growth begins to break down and infiltrate usually after nine months of painless hæmaturia, and then all hope of successful removal is gone.

Intermittent attacks of hæmaturia, unaccompanied by urinary pain, frequency of micturition, or obstruction to the stream, occurring in a patient about or above 30 years of age, who has intervals of perfect health and normal urine should be regarded as most suspicious indications of vesical growth. An examination of the urine usually affords a clue to the vesical origin of the hemorrhage ; vesical character being the formation and passage of large irregular-shaped clots, of brightish blood-coloured urine and of the appearance of blood at the completion

of clear urination. Although any one of these characters may be absent at any one particular time in the second stage, yet they may be met with at another, and inquiries should be made concerning them. Moreover, in a small percentage of the cases (19 per cent.) scraps of growth are passed, and these are certain evidences of the vesical position of the tumour.

It is well to remember that "villous" scraps are quite unreliable as guides to the benign character of the tumour, for 41 per cent. of vesical carcinoma have a surface covering of villous processes ; and *pure villous* tufts co-exist in one-sixth of the sarcomata and in one-fourth of the epitheliomata.

There are four groups of diseases of the urinary tract which evoke similar symptoms to those produced by benign growth in the bladder, and although the electric cystoscope in an educated hand will render the diagnosis certain in the majority of cases yet the instrument is not always available. It is therefore advisable to remind you of them.

1. Prostatic congestions in young men from excessive masturbation or sexual intercourse produces an intermittent symptomless hæmaturia.

2. In men over 50 a small uric acid calculus in an insensitive bladder or lodged behind a prostate produces a similar train of symptoms.

3. Certain renal hemorrhages such as are produced by latent carcinoma of the kidney or by chronic contracting granular kidney (West, Bowlby) need careful elimination by renal palpation and microscopical examination for casts, for they also induce a symptomless hæmaturia.

4. Lastly, urethral caruncle in the female often simulates a vesical papilloma.

But presuming you have made up your mind that the case is one of vesical growth, what circumstances would incline you to take a favourable view of the character of the tumour? Undoubtedly the length of time which the symptoms have lasted without inducing cystitis. If the bleeding has lasted for more than five years and the patient has not reached middle life there is every prospect of the tumour proving a pure papilloma.

On the other hand, when the patient has passed 45, when the onset hemorrhage has resulted from some slight violence, when it is copious to begin with or rapidly becomes violent and resists the action of hæmostatics, there is a grave fear that the tumour is a succulent epithelioma of the mucous membrane. I must confess I am still further inclined to view its character with suspicion, when I learn that there is a family history of longevity, or that the patient has passed through some severe mental strain, or some exhausting illness such as epidemic

influenza, prior to the commencement of the symptoms. A strong history of carcinoma in the family may be present either with the benign or with the malignant growth. I have removed growth from a bladder of one lady who had had two operations for carcinoma of the breast, and the tumour I ablated was a typical instance of pure fibro-papilloma. This was four years ago and she is still free.

Now it cannot be too strongly impressed upon you that the benign tumour, and the succulent epithelioma before it has commenced to infiltrate are both removable by operation provided only that they are attacked in the favourable period of their existence. The former can be ablated with a fair chance of permanent cure, and the latter with a fair hope of an increased length of life. In both cases the operative removal can be carried out without danger, without mutilation, and without any fear that a fistulous and leaking wound will be left behind. But this promising result depends absolutely upon the manner in which the tumour has been treated by the medical man prior to the operation. If cystitis has been induced—and it often is by injudicious zeal—that is to say, if the third period of its existence has been artificially hastened, the patient's chance of a sound and speedy recovery after operation is greatly lessened, nay more, his chances of a speedy recurrence is greatly increased.

Let us consider, then, how cystitis influences the result of such an operation. When cystitis complicates a benign tumour, slight one-sided pyelitis is often also induced; for these growths are mostly situated over or around the urethral orifice, and they obstruct and dilate the urethral canal, which becomes readily inflamed by contiguity. Moreover, the wound left by the ablation heals slowly and sluggishly, and the hemorrhage may continue for days after it should have ceased. The increased vascularity of the mucous membrane around the site of the growth fosters any tendency to recurrence of the tumour. The suprapubic or perineal wound obstinately refuses to close. When cystitis has appeared in a bladder affected with succulent epithelioma, the pabulum of blood brought to the tumour, and therefore the rate of progress of the growth, is increased tenfold. The inflammatory wave attaches the movable and previously healthy base of the tumour to the muscular wall, and the latter becomes rapidly infiltrated. The operation wound probably will never heal, but will become more or less quickly implicated. It therefore behoves us in dealing with a case of symptomless intermittent hæmaturia to be very chary in the use of the catheter or sound. If it is considered necessary to employ the latter, let it be manipulated with the utmost care. Do not attempt to separate or scrape off a piece of growth for

examination, for in nearly every case the most gentle sounding will increase the hemorrhage, and such roughness as this will change a controllable bleeding into a profuse and persistent loss, besides inducing cystitis. As regards washing out the bladder in order to arrest an alarming hemorrhage or to remove a solid mass of blood clot which is causing retention, let the instruments be aseptic and the water you employ sterile.

Treatment will be mainly directed towards arresting the hæmaturia in the second stage, and in the later period to relieving the pain and irritability of the bladder by means of sedatives. In the earlier attacks of bleeding, any hæmostatic will usually suffice—gallic acid, ergot, alum, iron, combined in every case with opium, may be tried. When the hemorrhage has once become established it is often most rebellious. In some cases it is so furious that nothing short of cystotomy and removal of the surface of the growth arrests it. Presuming we are dealing with a vesical growth, the advice we tender to our patient concerning operative interference will be controlled mainly by the presence or absence of cystitis, and by the condition of the wall of the bladder as felt through the rectum or vagina. Should any dense infiltrated patch be felt in the vesical muscle wall, operative interference for the ablation of the growth will be perfectly useless. All that can be done in these cases, I believe, is to attempt to relieve the torture of micturition by perineal or suprapubic drainage. Even this, I regret to say, is insufficient to alleviate the agonising spasmodic pain with which some cases are afflicted. If no infiltration be felt, and no cystitis be present, the sooner the patient is operated upon the better.

The operation is a very simple procedure, as it always is in suitable cases. I do not use either the Trendelenburg position or a rectal bag, for neither are necessary if cystitis has not supervened. A 2-inch suprapubic medium incision, starting from the pubes, is made, the recti are separated, and the bladder, which has been previously distended, is hooked up, and a 1-inch vertical incision is made into the viscus. Two blunt button-hooks are then inserted, and the dresser holds the ends of the wound taut by these, while a caisson is slipped into the bladder and directed towards the place where the growth has previously been seen, by means of the cystoscope, to be placed. The open end of the caisson is rested on the growth, and the water is sucked out. A head lamp or mirror throws light upon the tumour, which is then twisted off or torn away piecemeal by means of long catch forceps. When all the surface of the growth has been removed the base is attacked. It is either snipped out by means of scissors, or cut away with a lance-pointed knife. The hemorrhage is checked by firm pressure of a sponge dipped

in a solution of iron, and double drain-tubes are inserted. The bladder is now washed out through the tubes and the patient removed to bed. In three days' time the tubes are removed, and in a week the patient is up. I do not remember a case in which the wound has not closed before the end of the third week. I do not always use the caisson. Sometimes I drag the growth to the opening in the bladder and dissect it off the wall. In women, after careful dilatation of the urethra, I employ the same manœuvre. I seize the growth with long narrow forceps, bring it to the opening of the urethra, and dissect it off the muscle wall, or twist it off its base. An operator should never forget that an incomplete removal is tantamount to an early recurrence, whether the tumour be benign or malignant.—*British Medical Journal*, *June* 10, 1893, *p.* 1209.

61.—ON NEPHRORRHAPHY FOR MOVABLE KIDNEY.

By G. M. Edebohls, M.D., Gynecologist to St. Francis Hospital, New York.

The main object of this communication is to advocate the performance of nephrorrhaphy, or fixation of the kidney by suture, in all cases of movable kidney where the patient's life is endangered by the persistence of the condition, or in which the sufferings are of such an aggravated character as to make life a burden. It is understood, of course, that a careful diagnosis must precede the operation. Such diagnosis must not be confined to the mere detection of a movable kidney, but must include a complete canvass of the patient's physical condition, all the organs, but especially the generative, being thoroughly interrogated for evidence of disease. Only after such thorough investigation can it be decided whether the symptoms, or the majority of them, depend upon movable kidney, and whether nephrorraphy is likely to afford relief. In many cases it will be found that operations upon the genital organs are indicated in addition to nephrorrhaphy. Whenever possible, all the various operations necessary in a particular case should be performed at the same sitting.

I will now describe the operation of nephrorrhaphy as I have practised it. The patient is placed upon the table in the left lateral (Sims's) position. Two small, firm pillows or cushions are so placed upon the table as to press into the left lateral and anterior regions of the abdomen, crowding the viscera upward to the site of operation and putting the latter well upon the

stretch by separating, as far as possible, the right twelfth rib from the crest of the right ilium. The same antiseptic and aseptic precautions are observed as at a cœliotomy. The incision, made along the outer edge of the erector spinæ muscle, should in all cases extend the entire distance between the lower edge of the twelfth rib and the crest of the ilium. It should be made more or less oblique, according to the lesser or greater distance between these points. The superficial fat, the tendon of the latissimus dorsi, and the conjoined tendon of the internal oblique and transversalis are successively divided along the whole length of the cutaneous incision until the peri-renal fat is reached. The outer fibres of the quadratus lumborum occasionally overlap the line of incision, and are then cut through along their length. The fatty capsula is penetrated by a small incision until the kidney with its capsula propria is detected at the bottom of the wound. Palpation of the kidney, with one or two fingers, through the wound of the fatty capsule, will enable us to get our bearings and determine the extent to which the length of the incision in the fatty capsule should be increased in both the upward and downward directions. The fatty capsule is incised along the whole length of the convexity of the kidney, after which it is drawn out of the wound as far as it will go, and the redundancy of the fat sac is cut off on either side at a level with the bottom of the wound. In doing this care must exercised not to open the peritoneum at the lower pole of the kidney. The trimmed edges of the fatty capsules are secured with a small pair of T-shaped forceps for guidance in the subsequent suturing. The delicate part of the work now begins. The capsula propria of the kidney is incised along the whole length of the convexity of the organ in the mesial line. To do this successfully the kidney must be moved up and down so as to expose successively, at the bottom of the wound, the lower and upper halves of the organ. A pair of tenaculum forceps or two are of material aid in this and the subsequent parts of the operation. They must, however, be used with exceeding gentleness, as the kidney substance is exasperatingly friable, and they readily tear out. During this and subsequent steps of the operation it is of paramount importance that the kidney be pressed well into the bottom of the wound, so as to be readily accessible. If the two cushions spoken of at the beginning have been well placed under the left loin, nothing further is generally necessary, the kidney being well sustained in place, merely moving rhythmically upward and downward with respiration. If the cushions are not properly placed, or prove insufficient, the hand of an assistant pressing upon the abdomen so as to crowd the kidney into the wound must be made to take their place or to supplement them.

After the capsula propria has been incised it is stripped off from the kidney substance on either side, until about one and a quarter centimetres of the kidney substance are exposed on either side along the whole length of the incision through the capsule, thus making raw surface ten to twelve centimetres long by two and a half centimetres wide for union with the deep parts of the lumbar incision. It is just here where nephrorrhaphy performed by stitching the fatty capsule alone, or by stitching the kidney without opening its capsula propria, failed, both the fatty capsule and the capsule proper being tissues in no way adapted to firm cicatricial union with contiguous parts. The stripped off capsula propria is not removed, but is doubled backward upon the still adherent portion like the lapel of a coat.

Thus far the steps of the operation have been identical in all my cases. In the method of suturing, however, I have made slight variations. At first I sewed with silkworm-gut, embracing on either side, in each suture, skin, superficial fat, the tendons of the abdominal muscles, the cut and trimmed edges of the peri-renal fatty capsule, the reflected as well as the still adherent capsula propria. The loop of the suture penetrated the kidney substance to the depth of one to one-and-a-half centimetres. Five or six such sutures were usually passed and tied upon the skin after a rubber drain had first been passed to the bottom of the wound and caused to lie along the raw kidney substance its whole length, with an end emerging at either angle of the wound. In my later cases I attached the kidney to the deeper and firmer tissues of the abdominal walls, the muscles and aponeuroses, by buried sutures of kangaroo tendon or silkworm-gut, passing a drain composed of ten or twelve silkworm-strands along the raw kidney surface, instead of the rubber drain. The purpose of the drain is twofold: first, to remove all secretions, which might interfere with primary union, from the depths of the wound, and secondly, to favour firm cicatricial union by mild irritation of the raw kidney substance and the contiguous deep tissues of the abdominal wound. In tying the deep buried sutures, whether of silkworm-gut or of kangaroo tendon, care must be exercised not to draw them too tightly, as they readily cut through the friable kidney substance. The skin and superficial fat are closed over the deep buried sutures by a running suture of catgut. Union by first intention has been the rule. The dressings are changed for the first and last time on the eighth day, when the drain is removed. The patient is kept on the back for three weeks, and then allowed to sit up and go about as she pleases.

Although the stitches are passed deeply through the kidney substance, I have in only one case, a double nephrorrhaphy at

one sitting, observed hæmaturia or albuminuria after operation though other writers mention these as of occasional occurrence. Since the experiments of Tuffier have demonstrated that destroyed or ablated kidney tissue is readily and speedily replaced, under ordinary circumstances, by a liberal regeneration of new kidney structure, we need no longer take into account the slight traumatism inflicted by the passage of needles and sutures.

The mortality of the operation should be practically *nil*. Of my twelve cases I lost one in which the peritoneum was accidentally opened, and a diphtheritic infection of that membrane unfortunately occurred.

Of the eleven cases which recovered, one, a double nephrorrhaphy performed at one sitting, is as yet too recent to speak of final results. A second patient has not as yet left her bed. Of the other nine, in not one has the sutured kidney, to my knowledge, become movable, the first patient having been operated upon February 8, 1890, and the last, four months ago. Both anatomical and therapeutical results are all that could be desired. None of my patients have worn a supporter of any kind since operation.—*American Journal of the Medical Sciences, April*, 1893, *p.* 417.

AFFECTIONS OF THE SKIN, &c.

62.—THE TREATMENT OF RINGWORM BY UNNA'S METHOD.

By Alfred Eddowes, M.D., Clinical Assistant to the East London Hospital for Children.

In a discussion at the British Medical Association's Annual Meeting, July, 1892, Dr. Eddowes said that he would deal only with the treatment of ringworm of the scalp. Dr. Unna had had great success in the treatment by his method with chrysarobin. To those accustomed to use chrysarobin (chrysophanic acid), the method might be strongly recommended, providing the patients could be seen sufficiently often and carefully attended to. Experience showed that Unna's plan could only be carried out under conditions which could not be secured in out-patient practice in London. Dr. Eddowes had therefore sought to modify it so as to be able to get through a large number of cases in a limited time. The result was not

so rapid as with the original, but could be highly recommended. The essential preparations were (1) a sulphur and vaseline ointment about ℥j to ℥j, (2) olive oil, (3) a compound chrysarobin ointment containing, say, 25 grs. of chrysarobin to the ℥j, the same proportion of ichthyol, and 10 grs. of salicylic acid. The plan is this :

First Week.—The sulphur ointment to be applied daily. Hair to be cut as short as possible with scissors over the whole scalp. Scalp to be washed two or three times during the week with soft soap or soda and water. A cap to be worn night and day.

Second Week.—The chrysarobin ointment to be rubbed well into a few patches, but not over too wide an area, or in such quantity as to run down on the face, neck, or ears ; the rest of scalp to be dressed with the sulphur ointment. If the two ointments become mixed up a little it is of no consequence. A piece of oiled silk or gutta-percha tissue a little larger than the hairy scalp is then placed over the ointment, and a tightly or rather, should I say, a closely-fitting—skull-cap is then fastened over all. All ointment to be thoroughly wiped off scalp and tissue or oiled silk, and fresh ointment applied daily. The area to which chrysarobin ointment is to be applied must be regulated according to the condition of the skin and the comfort of the patient from day to day. If the skin be very intolerant of the remedy, it should be cleansed by wiping with tow or cotton wool, and be dressed with the sulphur ointment instead. If the chrysarobin be well borne, the area to which it is applied is daily extended till the whole scalp is dressed with it, but never for more than four days consecutively. At the end of four days in any case, and sooner if necessary, on account of irritation, the sulphur is entirely substituted for the "dark" (chrysarobin) ointment. During the last night of the week the scalp is well oiled, next morning well washed with soft soap or soda and water, dried, oiled, and patient brought for inspection.

Third and following weeks.—Precisely as the second until a cure has been effected.

The most important practical points were (1) thorough cleansing of the scalp before the employment of chrysarobin ; (2) the removal of secretion and scales by means of the sulphur ointment and oil before redressing with chrysarobin. As Unna had stated, the skin should be brought back to its normal colour before the chrysarobin was reapplied. This was a point of the highest importance. If any chrysarobin found its way on to the forehead, neck, or ears, the parts should be dressed with vaseline, zinc ointment, dusting powder, or, still better, with zinc gelatine and cotton wool. The cap should fit closely and come well over the scalp, but not constrict any part. A cap made by the "Scottish Home Industries" answered very well.

It was better than bandages or handkerchiefs, and it had the great advantage of not advertising to the public that the head inside it was undergoing surgical treatment.

Among children of the poorer classes ringworm was scattered broadcast in the schools, and Dr. Eddowes suggested that the parents or guardians should be requested to keep the hair of the children's heads cut rather short; that they should wash the scalps once a week with soft soap and warm water, and oil them afterwards or apply vaseline; and that a little oil should be used regularly for the hair. At the end of a term, especially in summer, the heads should be at once systematically examined, and the guardians of each child should be informed of the existence of any disease requiring treatment, and be requested to have it attended to during the vacation; and that, on reassembling of the school, their child would not be allowed to attend unless cured or so dressed as not to be a source of contagion to the other children. When under efficient treatment for ringworm of scalp, there was no sufficient reason why children should not go to school. Their hair could be cut short with a clipping machine or a metal comb and scissors, and the scalp dressed with a mild ointment, such as sulphur or boric acid, and washed once, twice, or three times a week with an antiseptic soap or common soft soap—or, if preferred, a solution of soda—according to the state of the skin. If the skin were sensitive, once a week would be sufficiently often for the employment of soap. Afterwards, at any convenient time—after an examination or at the end of the term—the chrysarobin method or any other in which the medical attendant felt most confidence might be commenced. Such a preliminary procedure was sufficient to cure some cases, and always decreased the diseased area. Before concluding, he would like to say a few words on two important practical questions: How do we know when a case is cured, and can mercurial preparations be recommended? The only certain test that a case was cured was that the disease did not reappear after cessation of treatment for many weeks, but by means of a careful inspection of the cleansed scalp a very fair opinion could be formed after some experience. Doubtful hairs when extracted should show sound roots. Examination of any doubtful hairs under the microscope by the usual histological methods, of course, was of great value, but the most trustworthy test in practice was the method of taking cultivations from the hair-roots in the way taught by Unna. With regard to the use of mercurial ointments, care was required. The horny layer of the skin was damaged by ringworm, and apt to be split up by other co-existing complications that must render absorption probable. —*British Medical Journal*, *April* 15, 1893, *p.* 785.

63. ON THE TREATMENT OF LUPUS ERYTHEMATOSUS BY PHOSPHORUS.

By L. Duncan Bulkley, M.D., Physician to the New York Skin and Cancer Hospital.

It is not wise to attempt to present data or statistics in regard to the cure of such an eruption as Lupus Erythematosus by any special line of treatment; we all know how unreliable such statements may be in a special and consultation practice, and I will not attempt it on the present occasion. I may state, however, that in a very considerable number of cases I have seen the lesions of lupus erythematosus subside and entirely disappear under the treatment proposed, and in a number of instances I have had the patients under observation, in one way or another, for a length of time after treatment.

In reference now to the particular plan of treatment recommended, I wish first to state, that I do not by any means claim priority in the use of phosphorus in lupus erythematosus, for I believe it has been mentioned in some of the older books, and I do not know where I first found the suggestion which led to its employment.

But I have searched in vain in the more recent works for any mention of its use, nor can I recall any suggestions of the same in journal literature, except such as I have myself occasionally thrown out from time to time; these latter, however, do not appear to have attracted attention—indeed, this treatment was mentioned only casually in connection with other subjects. In the light of my experience, therefore, I wish now to bring forward this remedy as a most valuable addition to our internal treatment of this disease, for the therapeutics of lupus erythematosus is certainly far from satisfactory, as may be judged from the meagre presentation of the subject in our recent text-books.

Some considerable care is necessary in employing phosphorus internally, but if it is properly administered and due precautions are exercised, I believe it to be perfectly safe; some of my patients have taken it continuously for months, not only without harm, but in some instances with marked improvement to their general health.

While it is the phosphorus that is of service in the disease under consideration, there is great difference, both in regard to its immediate and later effects, as to the form and method in which it is administered. In my earlier trials with the remedy, I gave it, as is often recommended, in oily solutions, and in the form of pills; but with these I had on several occasions such severe digestive and liver disturbances, and occasionally with violent jaundice, that I was lead to adopt wholly the form of

administration about to be recommended, and to exercise other precautions, so that now for a number of years past I have had no single instance of disturbance from the remedy which could cause uneasiness.

The form in which I now administer the phosphorus is in a solution, which was first suggested, I believe, by Dr. Ashburton Thompson, primarily for employment in nervous conditions. I give here the formula which I have long used, and which is known in my clinics as "Thompson's solution of phosphorus":—℞. Phosphorus, gr. vj.; absolute alcohol, ℥xxx. To be dissolved with the aid of heat and agitation, and then mixed, while still warm, with the following mixture, also warmed: Glycerin, ℥ixss.; alcohol, ℥jss.; essence peppermint, ℥ss. Each drachm contains $\frac{1}{10}$ grain of phosphorus.

In most cases I begin with fifteen drops, in water, three times daily after meals. It is well to have the water added quickly after the liquid has been dropped out in an empty glass, and the dose should be taken at once, as I believe that the presence of water changes somewhat the state of the free phosphorus: if exposed to the air the phosphorus oxidizes, and the less efficient phosphoric acid is formed. Commonly the dose may be increased by one or two drops daily until thirty are taken three times daily; the dose is then increased more slowly, by one drop every other day, until forty or forty-five are taken each time, and in rare cases, if it agrees, even a larger amount may be given; but seldom have I given as much as sixty drops to a dose. As the disease yields, the dosage is still continued, if well borne, even until the lesions have quite disappeared and superficial cicatrization has taken place.

It is well to watch patients very carefully while taking this remedy, noting the condition of the tongue and of the digestion, and with the least disturbance the drops should be stopped for the time, and proper measures instituted to restore the deranged functions. If there is any constipation or signs of liver disturbance, I always give a mild dose of blue-mass, colocynth, and ipecac, repeated on the second night after; if, then, the bowel discharge has been free and the tongue is not coated, the drops may be resumed at a smaller dose than when stopped, and the amount again increased, yet more slowly and cautiously.

In many instances the greatest benefit will result from the administration of full doses of nitric acid after each meal, well diluted, in the interval of cessation of the drops, say for a week, when they may be returned to as before. This course of nitric acid may be repeated from time to time with advantage.

When there is much heat and flushing in the eruption, it will often be better to give, in place of the nitric acid, the acetate of potassa, in doses of fifteen grains, with the fluid extract of

rumex, and nux vomica, well diluted, half-an-hour before meals, as in acne rosacea. This I have sometimes seen to have a most beneficial effect upon the eruption, and when the phosphorus has seemed to have lost its effect on the lesions, I have observed it to take hold of them strongly after a course of a week or so of the acetate and rumex mixture.

In many instances, however, there has been little or no difficulty in taking the phosphorus when the dose was not pushed too actively, and some patients have required little or no assistance from the measures mentioned. But I must insist that the remedy here advocated is to be given most carefully, and claim that, when rightly administered, it is harmless and of great benefit to the disease in question.

Knowing so little as we do in regard to the real nature and causation of lupus erythematosus, I cannot attempt any definite explanation of the mode of action of the remedy in this disease. But in my judgment, arguing from the effects of phosphorus in certain nervous conditions, I think we must look for its action through the agency of the nervous system. There are many elements, which I cannot consider now, which point to a probability that the eruption is of angio-neurotic origin, and these are confirmed, in a measure, by the results obtained from phosphorus employed in the method above described.

I have not attempted any consideration of the local treatment of lupus erythematosus, as I wished to present only the single point which has been emphasized in this paper. In many of my cases I have found decided results from the methods commonly described; but their frequent failure to check the spread of the disease has led me to persist in the use of the internal remedy here advocated, which will, I trust, meet with favour also in the hands of my *confrères.—American Journal of the Medical Sciences, April*, 1893, *p.* 394.

AFFECTIONS OF THE EYE AND EAR.

64.—ON TROPACOCAINE IN OPHTHALMIC PRACTICE.

By George Ferdinands, M.D., Assistant Ophthalmic Surgeon, Royal Infirmary, Aberdeen.

After reading Dr. Chadbourne's valuable and concise paper (*British Medical Journal*, August 20, 1892, *p.* 402), on the synthetical hydrochlorate of tropacocaine, I obtained, with some

difficulty, a small sample. The following brief clinical observations were noted by me during a period of six months. Solutions of various strengths were used, thus—1, 2, 3, 5, and 10 per cent. The installation of one drop of a 2 or 3 per cent. solution (there being not much difference between the two) caused complete anæsthesia of the cornea in two minutes. But, for the removal of small foreign bodies, the cornea was always sufficiently insensible in about thirty seconds. Hardly any smarting or discomfort was felt, and that only momentarily. There was no hyperæmia. The conjunctiva, especially the palpebral portion, was slower in becoming anæsthetised, but it appeared to retain its insensibility for a longer period Sensation gradually returned in from ten to fifteen minutes. This depended, no doubt, on the size of the drop instilled into the eye and the amount that escaped from it. A 1 per cent. solution within a few minutes gave sufficient anæsthesia to remove foreign bodies, but sensation returned early ; and although repeated instillations completely anæsthetised the cornea and conjunctiva, the solution was discarded as unsuitable. A single instillation of the 5 per cent. solution rendered the cornea and conjunctiva completely insensible in a minute and a-half, but superficial anæsthesia of the cornea was produced so rapidly that in five seconds it was insensible to the touch of a camel's hair brush. The anæsthesia lasted from fifteen to twenty minutes. A drop of the 10 per cent. solution caused insensibility of the cornea within a few seconds, but it also gave rise to considerable injection, which remained for a few hours. At the end of the half-hour during which the patient was under observation, the anæsthesia still remained complete ; unfortunately its full duration could not be recorded. Next day the patient stated that an hour after he left a pain set up in his eye, which kept him awake the whole night. He described it as acute and extending to the back of the head, and frequently darting up to the brow. These statements made me chary of using the strong solution any further. Besides, there was no need for so concentrated a solution, as the 5 per cent. gave every satisfaction whenever rapid anæsthesia of the deep-seated parts was desired. The 3 per cent. solution was most frequently employed. Below are a few instances in which tropacocaine was used.

Eyelids and Conjunctiva.—Meibomian cysts were painlessly incised and scraped. In cases of muco-purulent ophthalmia requiring the application of a strong solution of nitrate of silver a drop of tropacocaine prevented the after-smarting which usually follows that operation. Cocaine, as a rule, is less effective when the conjunctiva is inflamed. But tropacocaine does not appear to fail in this respect, neither did its continual use produce that sodden appearance of the conjunctiva, which is frequently the

case with cocaine. In entropion of the lower lid requiring the removal of a piece of skin, and in other operations about the lids, three drops of a 3 per cent. solution injected subcutaneously at the spot made the operations painless.

Cornea.—Ulcers were painlessly cauterised. Needlings were also satisfactorily accomplished without pain. In cataract operations, with and without iridectomy, no pain was felt, three instillations of a 3 per cent. solution being used. A single drop of a 5 per cent. solution rendered the excision of a portion of prolapsed iris painless. The same solution gave satisfaction in an iridectomy for glaucoma.

Nasal Duct.—Canaliculi were slit up without pain, and the injection of a few drops of a 3 per cent. solution down the duct rendered otherwise painful probing tolerable.

Strabismus.—A single drop of a 5 per cent. solution produced sufficient anæsthesia of the muscle. Some minutes were usually allowed to elapse between the instillation and the operation. The 3 per cent. solution required several instillations.—*British Medical Journal, June* 24, 1893, *p.* 1318.

65.—ON THE EXTRACTION OF CATARACT BY SHALLOW FLAP.

By T. Pridgin Teale, F.R.S., Consulting Surgeon to the General Infirmary at Leeds.

[We extract the following description of Mr. Teale's method from his Bowman Lecture on the Abandonment of Iridectomy in the Extraction of Hard Cataract.]

1. *Antiseptics.*—Carbolic acid still maintains its supremacy in my surgical work. The eyelids, eyelashes, conjunctiva and conjunctival recesses are well cleansed with a solution of three minims to the ounce, a little more than $\frac{1}{2}$ per cent., in which also all instruments except the knife are soaked.

2. *Anæsthesia.*—Cocaine is employed exclusively. For this purpose the drops to be used are specially prepared just before the operation. A small tube containing a grain of sterilised cocaine receives ten minims of distilled water, and this is instilled into the eye once or twice.

3. *The Lid-holder.*—This is a spring speculum of a pattern which was brought to me from the Continent about twenty years ago. It is large, strong, and well curved, and yet it allows ample room for the finger and thumb of an assistant to hold it firmly and by means of it to control the eyelids and

defend the globe from injurious pressure or spasm of the orbicularis. The spring speculum, having been introduced, is put in charge of a competent assistant.

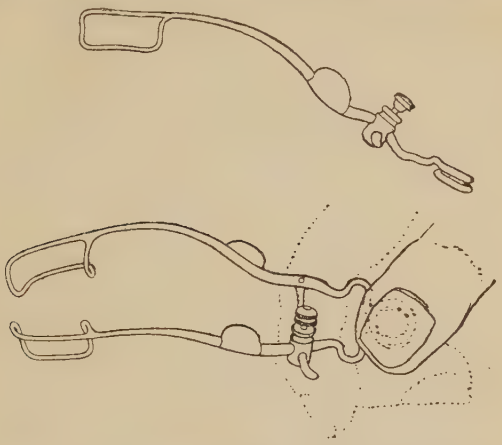


Fig. 1.

4. *Fixation of the Eyeball.*—The surgeon then by means of conjunctival forceps with broad teeth takes hold boldly of the conjunctiva and subconjunctival tissue about three millimetres below the cornea, rolls the eye downwards and commences the incision.

5. *The Knife.*—My earlier shallow flap operations were made with the narrow Graefe's knife. This in my hands was not quite satisfactory, as I could not easily retain the aqueous humour up to the moment at which the knife edge reached the posterior surface of the cornea, and so sometimes the iris was washed over the edge and wounded. Some of my friends

Fig. 2.

have succeeded with Graefe's knife. I, however, did not acquire the knack of using it to my satisfaction and therefore fell back upon the long narrow knife of Sichel, which by its wedge shape retains the aqueous up to the moment at which its edge is turned forwards against the cornea. For the last three or four years I have used a still narrower form of Sichel's knife

suggested by and made for Mr. R. N. Hartley, which is almost identical with Taylor's marked No. 822 in Weiss's catalogue. This has proved to be admirable for the purpose, combining the wedge principle of Sichel with a close approximation to the narrow Graefe.

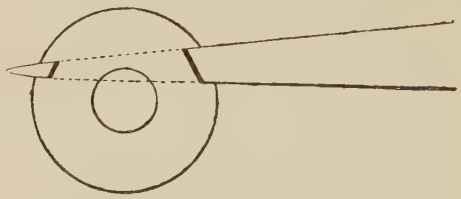


Fig. 3

6. *The Mode of Incision.*—The point of the knife enters the cornea just within the outer margin at its equator and emerges at a counter-puncture just within the inner margin of the cornea at a level about two millimetres above the equator. As soon as the counter-puncture is well accomplished and the point of the cateract knife has passed out of the cornea to the extent of about four millimetres the next step is taken. This is the most critical part of the operation. The knife is somewhat rapidly and with a sort of knack turned directly forwards so

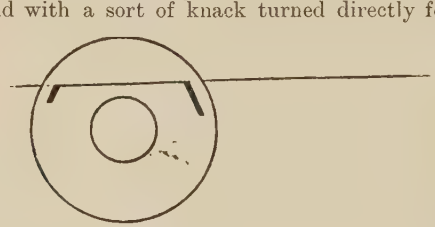


Fig. 4.

that the blade, which up to this point has been parallel with the iris, comes to a right angle with the back of the cornea. The section is completed by cutting directly forwards, this final cutting being vertically through the corneal thickness, absolutely linear and in position about midway between the horizontal equator and the upper margin of the cornea. The knack of this part of the operation consists in so managing the knife that, as soon as it is turned from a plane parallel with the iris, in which by its wedge shape it retains the aqueous humour, to a plane vertical to the back of the cornea, which at once allows the aqueous to escape, the edge of the knife shall rapidly reach the

posterior surface of the cornea and be in contact with it before the iris can fold over its edge. While this final part of the incision is being made an assistant controls the eyelids by the speculum, holding them slightly off the eyeball so as to avert any sudden pressure on the globe during the completion of the incision. The incision thus made is practically a shallow flap, chiefly linear, with a small limb at an obtuse angle corresponding to the heel of the knife at the outer edge of the cornea, and a still smaller, hardly perceptible limb corresponding to the point of the knife at the inner edge of the cornea. At the limbs the knife passes through the cornea obliquely, but in the horizontal linear part it cuts vertically through the corneal structure.

7. *The Section.*—I always make the section in the upper half of the cornea, using the right hand for the right eye and the left hand for the left.

8. *Extraction of the Cataract.*—The operation is completed as follows. Whilst the assistant continues to control the eyelids by the speculum, the operator, still keeping a grip of the conjunctiva below the cornea, so presses the holding forceps against the eyeball as to steady the lens towards the cornea whilst he ruptures the capsule with the cystotome. By this manœuvre he avoids the risk of damage to the suspensory ligament by pressure of the cystotome. After the rupture of the anterior capsule the delivery of the lens is effected by the mutual

Fig. 5.

manipulations of the two hands, the one maintaining the conjunctival hold with the forceps below whilst the other exercises pressure above the cornea by the convex surface of the curette. By this means, and more especially by the pressure of the curette just above the cornea, the upper edge of the cataractous lens is made to present itself through the pupil and wound, and a very slow gradual delivery can be accomplished by the combined or alternated pressure of forceps and curette. Great pains are taken to remove by the curette any remnants of the cortical portion of the lens, so as to completely cleanse the anterior chamber and the conjunctiva of all débris.

9. *Dressing of the Eye.*—The spring speculum is only now removed. The eyelids and eyelashes are then smeared with vaseline, over which iodoform is dusted. A pad of absorbent cotton-wool with an outer layer of black cotton-wool is applied to each eye and made firm with strapping. I have for many years discarded every form of bandage, as having no advantage over adhesive strapping (except for men with a very hairy face) and as having the serious disadvantage that if there be any swelling of the eyelids there is no yielding and therefore a possibility of injurious pressure. If all goes on well, and if there is but little pain and little watering of the eye so that the pad remains dry, I leave the eye undisturbed and unlooked at until the eighth day, when I change the pad of the eye that has been operated upon and remove the pad from the other.

I have gone thus minutely into the steps of the operation in the belief that if we are to have improved results by the abandonment of iridectomy it will not be by returning to the old semilunar flap nor by incision at the sclero-corneal junction, but by reducing the incision to as near an approach to linear extraction as the integrity of the iris and the bulk of the cataract will permit. The incision I have described has proved to me a faithful servant and will, I trust, prove to be so to others, until a better method can be invented. The advantages of the incision above described are as follows :—(*a*) In as far as it approaches the flap operation, it possesses with that operation the advantage of extrusion of the cataract without any cutting of the iris. In as far as it approaches the linear it obviates to a great extent the disadvantages of the flap which were the great liability to serious prolapse of the iris and to the displacement of the flap by the upper eyelid. (*b*) The position of the greater part of the incision across the middle and not at the base of the iris allows the lens more readily to present at the wound as there is less of the body of the iris to be displaced. (*c*) The greater part of the wound being linear and vertical to the corneal thickness, as soon as the lens has escaped and all cortical matter has been removed the wound closes absolutely and the edges fit, leaving a level surface which permits early sealing of the aqueous chamber. (*d*) The greater part of the wound being away from the base of the iris and rather towards the pupil, there is a remarkable facility for the escape, or rather the extrusion of cortical portions of the lens, the reason for which is discussed later. (*e*) The incision being entirely in the cornea and away from the ciliary region, there is probably much less risk of irido-cyclitis or of subsequent glaucoma. The knife is made by Weiss ; the spring speculum (Graefe's) is made by Down Bros. ; the cystotome-curette—the original Moorfields Hospital pattern—is also made by Down Bros.; the conjunctival

forceps (Schmidt-Rumpler) is made by Messrs. Krohne and Sesemann (Catalogue, 3993).—*The Lancet, June* 17, 1893, *p.* 1428.

66.—ON THE EYE AFFECTIONS OF PREGNANCY.

By A. Maitland Ramsay, M.D., Surgeon to the Glasgow Eye Infirmary.

By far the most important group of eye affections in pregnancy is that dependent on or associated with albuminuria—retinitis albuminurica of pregnancy. It is now known that albumen exists in the urine in more than 20 per cent. of pregnant women and in the case of primiparæ the percentage is considerably higher. The presence of albumen in the urine cannot therefore be looked upon so seriously when it occurs during pregnancy as it might be if its presence were detected in the non-pregnant condition ; and in many cases it is unaccompanied by special symptoms. Before giving a prognosis, therefore, it is well to make a careful examination of the urine, not merely with reference to the amount of albumen it contains, but also as to the quantity passed in the twenty-four hours, its specific gravity, the percentage of urea, and the presence or absence of tube casts.

In uræmic amaurosis the patient, after having suffered for some time from the usual symptoms of uræmia, suddenly complains that everything is becoming dark, and in a few hours blindness is complete. On ophthalmoscopic examination no retinal lesion is discoverable ; in a short time, provided the patient does not succumb to the uræmic attack, vision is restored to the normal. In one case of uræmic blindness which I had an opportunity of examining by means of the ophthalmoscope during an attack, the retinal arteries were seen to be smaller than normal, and it is easy to understand how a similar contraction of the arterioles in the brain, brought about by the presence of excretory matters circulating in the blood, may act on the visual centres so as to produce for the time being a complete suspension of function. That the lesion in uræmic amaurosis cannot be located in the optic nerve, but higher in the brain, is shown by the fact that, as a rule, the pupillary reflexes are preserved. The presence or absence of the reaction of the pupils to light is, indeed, an important factor in prognosis, as in those cases in which they are dilated and fixed, the recovery, although complete for the time being, is apt to be followed by frequent relapses, which end in total blindness from atrophy of the optic nerve. Moreover, the degree of the visual defect also affords perhaps the safest of all prognostic guides in enabling the physician to judge how far an individual

patient can safely tolerate the presence of urea in excess circulating in the blood.

In albuminuric retinitis proper there may be gross retinal lesions detectable by the ophthalmoscope, and yet the patient may make very little complaint of defective eyesight. In nearly all cases the vision is gradually reduced, but is seldom completely destroyed. Once sight is lost, however, the defect differs from that due to uræmia in the fact that it is more or less permanent, and, when complicated by uræmic poisoning, may pass for the time being into complete blindness. A typical case of albuminuric retinitis presents a very characteristic ophthalmoscopic picture. The pathological changes are, for the most part, confined to the central parts of the fundus. In addition to the usual signs of retinitis there are a number of minute, glistening, brilliant white spots arranged in a more or less complete star around the macula as a centre. The changes in the optic disc are of an inflammatory nature and vary in degree from a simple obscuration of the edges of the disc to a condition in which the papilla has become so swollen that the appearance presented are with difficulty to be distinguished from an inflammation of the optic nerve due to cerebral disease.

In the more chronic cases of Bright's disease œdema may be entirely absent, and a slightly increased vascularity of the optic disc, associated with the presence of a few white spots round the macula, may be all that can be detected on ophthalmoscopic examination. The appearance of the disc in such cases resembles that seen in various forms of neuritis due to the introduction of poisons from without—*e.g.*, lead, alcohol, &c.—and is probably brought about by the irritant action of the morbid poisons which are generated within the system and circulate in the blood as a result of the renal inadequacy. In an ordinary case of renal disease the occurrence of albuminuric retinitis adds very considerably to the gravity of the prognosis, but in the albuminuria of pregnancy recovery is frequent. Power records and gives drawings relating to a case in which after an abortion at the seventh month recovery took place, though the vision had been reduced to little more than a mere perception of light, and the quantity of albumen amounted to about one-sixth. In such cases, too, one eye only may be affected. During pregnancy separation of the retina may occur by itself or may complicate albuminuric retinitis, but even this grave complication, as a rule so hopelessly fatal to vision in ordinary circumstances, admits of more favourable prognosis in the pregnant woman. I know of a case where there was a retinal detachment in both eyes and in which vision was restored after the confinement. Although the treatment of such cases ultimately falls almost entirely into the hands of the obstetrician, the ophthalmoscopic

examination may afford valuable indications. When hemorrhages are present in the retina it is manifest that there is an altered condition existing between the blood, the blood-vessels, and the surrounding parts, and our therapeutic resources must be directed to the restoration of the lost balance between these. Moreover, the occurrence of retinal lesion indicates an advanced condition of the renal disease, and this raises the question as to the induction of abortion or of premature labour, on account of the danger to the life of both mother and child. Albuminuria occurs most frequently during the last few weeks of pregnancy, and at this time also the eye symptoms for the most part appear, so that, unless the inflammation of the retina be unusually severe, the induction of premature labour is in the majority of cases hardly warrantable. It is quite different, however, in those cases in which albuminuria and eye symptoms are present early in the pregnancy, as in such cases the danger to the mother's sight from the prolonged retinal inflammation, the danger to her life from the occurrence of convulsions, and the danger to the child from the uræmic state of the blood, abundantly justify the production of abortion.

Embolism of the central artery of the retina occasionally occurs during the puerperal state. Here, after the violent inflammation has passed away, the optic disc becomes pale and atrophied, and, on account of the absence of anastomotic connexions, the blood-supply is, when a block occurs, completely cut off from the retina, and blindness, sudden and complete, is the result. McKenzie mentions several cases in which, after delivery, there was ophthalmitis due to "inflammation of the uterine veins and the introduction of pus into the circulation." Constitutional symptoms quickly follow in such instances and as a rule the patient dies of exhaustion with all the signs and symptoms of pyæmia. When there has been severe post-partum hemorrhage marked diminution of vision has occurred, followed by atrophic changes in the optic nerve, ending in complete blindness.—*The Lancet, April* 15, 1893, *p.* 856.

67.—ON THE TREATMENT OF CHRONIC SUPPURATION OF THE MIDDLE EAR BY EXCISION OF THE AUDITORY OSSICLES.

By William Milligan, M.D., Lecturer on Diseases of the Ear in the Owens College, Manchester.

In certain cases of chronic suppurative otitis media the diseased process is confined to those portions of the middle ear which are situated behind the membrana flaccida Shrapnelli

Whether the origin of this localised suppurative process is to be explained by the propagation of such inflammatory affections as eczema, furunculosis, or impacted cerumen (especially when associated with otomycosis) along the superior wall of the external auditory meatus, or whether it is due to extension of disease *per tubam*, I do not at present stop to discuss. The first theory is warmly advocated by Walb, the second, or "tubal theory," is the one more commonly accepted, however. Whatever may be the actual sequence of events in the production of suppuration in this region, all aurists are at any rate agreed as to the great difficulties encountered in its successful treatment. These difficulties of treatment are partly of a mechanical nature, are partly due to the anatomical arrangement of the mucous membrane in this segment of the middle ear, and partly also to the pathological changes set up by the existing morbid process.

The recessus epitympanicus forms the highest portion of the middle ear, and is when diseased frequently shut off from the general tympanic cavity by the formation of inflammatory adhesions. This fact explains in many cases the uselessness of washing out the middle ear *per tubam*, or of using Politzer's air douche as methods of treatment; for in the one case the fluid fails to reach the diseased mucous membrane, and in the other the stream of air merely inflates the cavum tympani, and does not succeed in driving the purulent secretion from the recessus. In 75 per cent. of the cases examined by Schmiegelow air failed to pass from the Eustachian tube through the perforation in the membrana flaccida. Then, again, we usually find that the accompanying perforation of Shrapnell's membrane is too small, and situated at too high a level upon the surface of the membrane, to permit of efficient drainage. Also the anatomical structure of the lesion is such that numerous loculi are formed by folds of mucous membrane which normally exist in this region; and the results of pathological processes are such that these loculi, becoming shut off from one another, tend to retain inflammatory products. In addition, chronic suppurative affections of the mucous membrane lead rapidly to caries of the surrounding bony parietes, from the fact that the mucous membrane is in reality the mucoperiosteum of the part. The head of the malleus and the body of the incus being enveloped in these folds, and being kept constantly bathed in putrid pus, are prone to become diseased. Thus carious spots are frequently found upon these ossicles, either alone or in combination with caries of the surrounding bony walls.

Ludwig, who has done excellent work in this department, states that of the three ossicles the incus is the one most frequently found diseased. In 32 cases of hammer-anvil

extraction, he found the incus carious in 11, or 34 per cent., both malleus and incus in 16, or 50 per cent., the incus thus being carious in 27, or 84 per cent., of the cases. The stapes, from the fact that it receives a double blood-supply, is much less frequently attacked. When it is so, however, the disease is usually confined to its crura. The number of different methods of treatment which have been advocated at different times by different surgeons is perhaps the best indication we could have of the great difficulties which are encountered in successfully combating disease in this situation.

There exist among our ranks those who think that no form of procedure short of surgical interference is of any use whatever, while others, though by no means rejecting the employment of radical surgical methods, have a marked leaning to a more conservative line of action, and prefer to try, for a time at any rate, some of the milder forms of treatment.

Such methods as syringing the external auditory meatus, the employment of Politzer's air douche, or even the washing out of the middle ear *per tubam*, are in almost all cases, I think, insufficient of themselves to effect a cure from reasons already mentioned. Washing out the diseased recessus, however, by means of any of the intratympanic syringes now in use is a valuable method. This may be followed up by the insufflation of powders, as recommended by Bezold, Gomperz, and Liebermann, or by tamponing of the part, as recently suggested by Gruber. Yet the most assiduous care on the part of the surgeon, and the greatest patience on the part of the patient, will, however, frequently fail to effect a cure, owing to the fact that localised carious areas exist either upon the ossicles or tympanic walls, or upon both together—areas which resist local methods of treatment in the most stubborn fashion. So long as these foci exist, so long does the disease tend to perpetuate itself, and so long is the patient subjected to the risks incident to the presence of chronic suppurative middle-ear disease.

The question of excising the diseased ossicles and any portion of the membrana tympani which may remain was first proposed by Schwartze, and the operation has of late been frequently carried out. The indications for its performance are (1) chronic purulency of the middle ear with caries of the ossicles, and (2) the presence of cholesteatomatous masses in the tympanic cavity. In favour of the performance of this operation, it may be said that, in almost every case where it has been put in practice, purulency has either been arrested or, at any rate, has been much diminished in amount. Such symptoms as headache, tinnitus, vertigo, and constantly recurring attacks of earache, are also usually promptly relieved. Against the performance

of the operation it may be said that in those cases where parietal caries exist at the same time, the operation is insufficient to effect a cure.

It must be borne in mind, however, that, by removal of the diseased membrane and the carious ossicles ample space is secured for effecting free drainage, and that thus any accompanying carious foci are rendered more accessible to the spoon or small curette, and can, therefore, be much more thoroughly treated. The operation has now been so frequently performed both at home and abroad, and the after-history of the patients has been so carefully followed up, that it is now possible to gauge the various *pros* and *cons*, and to arrive at some definite conclusions as to its utility or otherwise.

Schwartze, Ludwig, Stacke, Grunert, Wetzel, Rheinhardt, Kessel, Sexton, Burnett, Colles, and many others have published the records of their work with more or less gratifying results. Ludwig, in an analysis of 32 cases, obtained the following results:—Cured, 20 cases; uncured, 11 cases; dead, 1 case. The death in this last case was not, however, due to the effects of the operation. In another analysis of 43 cases the following results were obtained:—Cured, 22 cases; uncured, 5 cases; under treatment at time of report, 9 cases; result unknown, 5 cases; dead, 2 cases. In these 43 cases the following results were found regarding the condition of the ossicles:—Malleus healthy, incus carious, in 12 cases; malleus carious, incus carious, in 25 cases; malleus carious, incus uncertain, in 2 cases; malleus carious, incus healthy, in 1 case; while in 3 cases the attempt to extract the ossicula failed. In 43 cases recorded by Grunert, cases which were kept under observation for periods varying from $1\frac{1}{4}$ to $1\frac{3}{4}$ years, there were $55\frac{1}{2}$ per cent. of cures and $44\frac{1}{2}$ per cent. of failures. Among 30 cases recorded by Rheinhardt there were 16 cures, and the hearing power was improved in 50 per cent. of the number.

Schmiegelow, in 20 cases operated upon, obtained recovery in 9 patients, improvement in 8, no change in 2, and an unknown result in 1 case. In Colles's 13 cases, 8 patients recovered, and 5 were improved.

In the performance of the operation, a strong and steady light is essential. I have in all my operations made use of the light from a lime-light apparatus reflected by means of a forehead mirror. The patient should be placed under the influence of an anæsthetic, and the head allowed to rest upon a firm and flat sand pillow. The meatus and the skin of the external ear should be carefully cleansed with some antiseptic lotion, and then filled with a 20 per cent. solution of cocaine for a few minutes. By doing so, the vascularity of the tissues is considerably reduced—a by no means unimportant advantage. A circular incision

round the remaining portion of the membrane is now to be made with a probe-pointed straight knife. The tendon of the tensor tympani, if still intact, should now be divided close to its insertion into the long process of the malleus. The superior ligament of the malleus is then divided, and the ligaments of the malleo-incudal joint severed as completely as is possible. A fine pair of forceps or the loop of a delicate snare should now be made to grasp the handle of the malleus, and gentle traction exerted until the ossicle comes away. If on examination the incus is now found diseased, it should be drawn down into the field by means of a fine hook, for example, that of Kretschmann, Ludwig, or Ferrer, and the ligaments of the incudo-stapedial joint divided by a specially-devised angular knife. If, however, the incus is found to be diseased prior to the performance of any operation, it is advisable, after having divided the membrane, to cut the ligaments of the incudo-stapedial joint first of all, and then to remove incus and malleus together.

During the performance of the operation, any oozing of blood should be rapidly mopped up with cotton-armed probes (the operator should have a number lying ready at his side). The ear should then be irrigated with a warm solution of boracic acid, the parts carefully dried, and a small quantity of some antiseptic powder insufflated at once. In those cases complicated by the presence of parietal caries, small curettes or spoons should be used to scrape away as much of the disease as is possible. The chorda tympani nerve, if not already gone, is in imminent danger of being wounded, or even completely divided. Loss of taste over the corresponding side of the tongue results, but as a rule is recovered from. The facial nerve may be injured, and in several recorded cases has been so, but permanent paresis or paralysis is unusual. The patient should be kept quiet for a few days after the operation, and light and non-stimulating diet given.

In 15 cases the operation was carried out as described, and with the following results: Cured, 11; improved, 2; still under treatment, 2.

The condition of the ossicular was as follows: Malleus healthy, incus carious in 5 cases; malleus carious, incus healthy in 6 cases; malleus carious, incus carious in 4 cases. Among the 15 cases operated upon a new membrana tympani has formed in 10. In 2 cases described as improved, and in 1 of the cases described as cured, there is no sign of regeneration of the membrane. In the 2 cases still under treatment a new membrane is showing signs of forming. Among 13 cases operated upon (the 2 cases at present still under treatment are not included) hearing was found more or less improved in 8, remained as before in 3, and was rendered distinctly worse in 2.

At the same time it must be borne in mind that operative interference is directed in the first instance to check the suppurative process, and not to restore the hearing power.

Regarding the after-effects of the operation, vertigo is at times a troublesome symptom. In one of my cases this symptom was so pronounced that for three days the patient was unable to walk across the room without staggering. Ludwig has observed after extraction of the malleus and incus a passing loss of hearing, alteration in gait, and facial paresis. These symptoms he attributed to injury to the bony wall of the labyrinth and Fallopian aqueduct during the extraction of the incus. Healing with formation of a new membrane appears from the reported records to occur in the minority of cases. In 51 cases operated upon by Lucae, the membrane remained uncicatrised in 34, while complete cicatrisation took place in the other 17 cases. Ludwig, in 20 recorded cases, found complete cicatrisation 5 times. In my own series of 15 cases, cicatrisation has taken place 10 times. Careful consideration of the histories of the above recorded cases and of other similar cases recorded in various journals leads me to believe that, even after the most painstaking and careful local treatment has been persevered with for many months, cure is the exception rather than the rule. At the same time, I must state that a few cases have passed through my hands where, with perforation of Shrapnell's membrane and with formation of granulation tissue, cure has been accomplished after the employment of purely local measures. In these cases disease had, however, existed for but brief periods, and were cases where no bone disease was present. Where caries—either ossicular or parietal—has once manifested itself, I am now inclined to think that the surgeon who trusts to the effects of local treatment will be disappointed, and that sooner or later resort will have to be made to some form of operative interference. Whether incision of the membrane and the ossicles *per meatam* is the form of operation best suited to the needs of such cases is, of course, a matter of individual opinion.

In favour of this operation it may be said that its risks are slight, but against it it must certainly be pointed out that its performance is difficult. The lumen of the meatus allows but scanty space for the free play of instruments, and the obscuring of the field of operation from the oozing of blood is a source of constant annoyance to the operator. At the same time, in those cases of "attic disease" where ossicular caries can be demonstrated, this form of procedure seems to me to answer the requirements of the case.

Should this operation fail to arrest suppuration, it is always possible to resort at a later date to opening the antrum and clearing out the contents of the middle ear. Recovery is

decidedly more rapid after the excision operation than after antrectomy, and the pain of the subsequent dressings is decidedly less. At the same time, the cases in which such an operation is useful are not numerous.—*British Medical Journal, September* 9, 1893, *p.* 563.

68.—NOTES ON SIXTY CASES OF DISEASE OF THE MASTOID PROCESS IN WHICH THE ANTRUM WAS OPENED.

By Adolph Bronner, M.D., Surgeon to the Bradford Eye and Ear Hospital.

During the last eight years I have operated on a number of mastoid cases, and it might perhaps be of interest to record the results of 60 cases of which notes have been kept. Of these 60 cases 19 were under 10 years of age, 20 under 20 years, 12 under 30, and 8 over 30 years of age; 39 were males, and 21 were females; 25 were acute, and of under one month's duration. In 17 cases there was an external fistula, in 21 there was a mastoid abscess, in 10 the mastoid process was thickened, in 8 there was no swelling, but pain on pressure, and in 4 there were no objective or subjective symptoms whatever in connection with the mastoid process. In 45 cases there was either a fistula or some superficial caries of the bone found at the time of operation, and in 15 we had to chisel to some depth before striking pus or the antrum. In 8 cases the operation failed to relieve the symptoms, and the patient died in one to fifteen days. The ear disease was due to influenza in no fewer than 5 of these cases Brain abscess was the cause of death in 2 of these cases, meningitis in 3, and disease of the lungs in 3, in 2 of which we found thrombosis of the lateral sinus, and in 1 the sinus was normal. Of the 52 cases which were relieved, 3 showed signs of disease of the lungs, in 2 of which the mischief was diagnosed before the operation, and in 1 the day after the operation; 36 of the 52 were cured within one year—that is, the discharge from the ear had ceased, whereas 9 still had discharge at the end of one year, and 7 were lost sight of. The number of cases in which the discharge still continues is very large, but this is, in my opinion, due to the fact that the after-treatment is so frequently neglected. The patients have had discharge from the ear for so many years that they no longer trouble about it. In private cases the percentage of cures is very much higher. The operation itself is only the beginning of the cure, and

prolonged and careful after-treatment is absolutely necessary. As regards the method of operating, there can be no doubt that the operation as first described by Schwartze is by far the best. The skin over the mastoid process is shaved and disinfected, and a vertical incision is made down on to the bone, 1 to $1\frac{1}{2}$ cm. behind the attachment of the auricle, about 4 to 6 cm. long, extending to the apex of the mastoid process. The periosteum is then cut through and detached and the edges of the wound drawn back by hooks. The bone is exposed and carefully examined to see if we can detect any fistula or small areas of diseased bone. If this be the case, the opening is enlarged with the sharp spoon or chisel, if possible to such an extent as to permit of the introduction of the finger, with which we can feel if there is any loose bone. When there are no external signs to guide us, we make an opening in the bone about 1 cm. behind the upper margin of the external meatus. The small chisels introduced by Schwartze are now generally used in preference to the trephine. Thin layers of bone are removed, the direction of the opening being downwards, forwards, and inwards. At a depth of 10 to 20 mm. we in most cases reach the antrum, or at least some mastoid cells. We then try to open up a free communication between the middle ear and antrum. In some cases this is not possible. Frequently there is rather severe hemorrhage from veins in the mastoid process, which may be mistaken for a lesion of the lateral sinus. In some rare cases the position of the lateral sinus is such as to make it impossible to proceed with the operation, and we then may try to open the antrum from the external meatus. It is of great importance to know when we should operate. I think that in these cases we cannot do better than again carefully follow the indications suggested by Schwartze. When there is any doubt as to whether we should operate at once or wait, the best plan is to operate. We cannot do very much harm by operating too soon, but we may risk the life of the patient if we wait too long. Schwartze suggests that we should always operate: (1) In cases of acute (primary or secondary) inflammation of the mastoid process, if, under ordinary treatment, the swelling, fever, and pain do not subside within five to seven days. (2) In cases of chronic disease of the process with recurrent attacks of swelling, or, cases of fistula, or of secondary abscesses in the throat or neck, even if there should not be any dangerous symptoms. (3) In cases of chronic otorrhœa without any visible signs of disease of the process, as soon as there are any dangerous symptoms of retention of pus or of cholesteatoma. (4) In cases of persistent neuralgic pains in the process. (5) In cases of chronic otorrhœa, as soon as we feel convinced that the disease is not confined to the middle ear.—*British Medical Journal*, *September* 9, 1893, *p.* 569.

69.—ON EXPLORATORY OPENING OF THE TYMPANUM AND SUBSEQUENT OPERATION IN THE MIDDLE EAR, WITHOUT GENERAL ANÆSTHESIA.

By Clarence T. Blake, M.D., Boston, Mass.

In view of recent advances in the surgery of the middle ear and especially in those cases of chronic, non-suppurative middle-ear disease where operation is undertaken for the improvement of hearing and in which the exact determination of the character and location in the sound-transmitting apparatus of the obstacles to the passage of the sound-wave is a matter of difficulty, the question of some method of exploratory operation which shall avail of the intelligent participation of the patient, has become a matter of considerable importance.

Tactile investigations as to the comparative sensitiveness of the different portions of the tympanic cavity also show its lining membrane and intrinsic structures, with exception of the superior and posterior portions—fornix tympani and aditus ad antrum mastoidum—to be comparatively insensitive, especially in the line of the sound-transmitting apparatus of the middle ear.

Operations within the middle ear, therefore, except such as include interference with the membrana tympani and invasion of the upper portion of the tympanic cavity may, in the great majority of cases, with proper care, be conducted not only without general, but also without local, anæsthesia, and in the cases therefore of chronic non-suppurative disease of the middle ear with intact membrana tympani, for which this operation of exploratory tympanotomy is proposed, when the sensitive membrana tympani has once been passed, there is opened to the observer an aseptic and comparatively insensitive cavity.

A review of the following cases will perhaps best explain the purpose and procedure in a method of operation, which it is to be hoped will prove of value, not only for diagnostic, but also for operative, purposes. In all of them the operation was preceded by the thorough cleansing of the external auditory canal and of the instruments appropriate to the opening of an aseptic cavity, and the same precautions as those already mentioned in papers on the operation of stapedectomy, were observed.

Miss C. J., forty-three years of age, was first seen March 14th. Both membranæ tympani were much thickened and indrawn as the result of a chronic, progressive, catarrhal inflammation of the middle ear. The hearing in both ears was so far impaired that a conversation-tube was used ; and in the right ear there was n hearing aerially for the Politzer's acoumeter, for the

tuning-fork aerially (512 v. s., 65 seconds' duration), and but slight perception by bone conduction. The Galton whistle was not heard in the right ear, except in the lower fifth of its register, and then only indistinctly, and there was annoying circulatory tinnitus. In view of the uncertainty of success in any radical operation on account of the long continuance of the disease and the changes which had evidently taken place in the middle ear, it was decided to do an exploratory tympanotomy in the right ear.

A preliminary incision two millimetres in length was made close to the posterior periphery, opposite the round window, and to this cut a two-per-cent. solution of cocaine was applied on a cotton tampon. One minute later the cut was continued into the second region of sensitiveness and the cocaine again applied, and after another interval of waiting the incision was continued upward and forward to a point opposite the centre of the posterior ligament of the processus brevis, where it was met with a cut made from below upwards along the posterior border of the manubrium mallei, the flap thus formed falling outward and affording a clear view of the parts beneath.

Tests of the hearing which were now made showed a slight improvement, and gave evidence of an unexpected degree of mobility of the stapes, while gentle traction on the malleus by means of a blunt hook showed a fixation of that bone in which a firm contraction of the musculus tensor tympani apparently played an important part.

A partial tenotomy of this tendon was therefore done, with comparatively little discomfort to the patient and with the effect of permitting the mobilization of the malleus, which was accompanied by a slight further improvement in hearing and an entire cessation of the tinnitus aurium. As the operation had effected its purpose so far as the demands of the patient were concerned, and as it had caused so little discomfort comparatively, that there was no dread of its repetition at a later day, the next step was to provide for the speedy healing of the membrana tympani, and this was accomplished by the application of a paper dressing similar to that used for closure of perforations of the membrana tympani. A paper disc moistened in corrosive solution was carried into the ear, under good illumination, on the point of a cotton-tipped probe, and brought in contact with the outer surface of the dependent flap already mentioned; a few seconds' contact was sufficient to insure its firm adhesion, when it was pushed upward, carrying the flap with it, into contact with the superior periphery of the membrane and inner end of the canal. This dressing remained in position three days, at the end of which time the cut edges of the membrana tympani had firmly united.

The tinnitus returned in a slight degree on the day following the operation, but gave no inconvenience, and the hearing by means of the conversation-tube very nearly equalled that in the better ear.

In the second case, Mrs. J. F., 60 years of age, an exploratory operation only was proposed because of the long continuance of a chronic catarrhal inflammation and the possibility, as had been shown in many cases of stapedectomy undertaken under similar conditions, of bony anchylosis of the stapes.

The cut in the membrana tympani was made under the same conditions and with even less discomfort than in the previous case.

At its conclusion tactile examination by means of the blunt hook and probe showed a moderate degree of fixation of the stapes, which was, however, easily overcome by lateral mobilization of the incus and stapes and by gentle traction upon the latter, all of which manipulations were carried out without discomfort to the patient and with no other anæsthesia than that of the application of a two-per-cent. solution of cocaine made to the cut edges of the membrana before the completion of the incision; care was, of course, taken, however, that the shaft of the hook and probe did not, in their manipulations of the middle ear, touch the edges in the opening of the membrana tympani. The improvement in hearing at this stage was sufficient to warrant a conclusion of the operation and the application of the paper dressing, after which the hearing (which before operation had been for the Politzer's acoumeter four inches, and for the tuning-fork aerially fifteen sixty-fifths) had more than doubled. A week later the opening in the membrana tympani had closed, and the gain in hearing remained.

Mr. D. V. D., forty-three years of age, had in addition to a gradual decrease in hearing in the right ear to an extent which made it practically useless, severe attacks of vertigo occurring at irregular intervals, especially during the six months preceding his first visit and slight circulatory tinnitus. The vertiginous attacks had gradually become more protracted until at the time of the first examination, February 22nd, there was persistent dizziness; the right membrana tympani was transparent and not retracted. He was able to hear a watch, which should have been heard at the distance of 180 inches, on contact with the ear only; the voice in a low tone was heard at two twenty-fifths of the normal distance only, the tuning fork aerially was heard 65 seconds, and by bone conduction 30 seconds. Following the injection of a two-per-cent. solution of cocaine through the catheter the usual incision was made with additional applications of cocaine to the cut edges, and the hearing when tested was found to be the same for the watch

and the voice as before the opening through the membrana tympani, but changed for the tuning-fork, being 45 seconds both by aerial and bone conduction.

The incudo-stapedial joint, which was freely exposed, was thoroughly mobilized, not only without pain or discomfort to the patient, but with a certain sense of relief and with some improvement in hearing for the voice and tuning-fork, which latter was now heard aerially 65 seconds and by bone conduction 45 seconds. The edges of the membrana tympani were then approximated and held in place by the paper dressing; anæsthesia was perfect during the operation, and no pain was felt after the first incision of the membrana tympani to which the cocaine was applied in the same manner as in other similar cases. At the close of the operation the patient heard the watch at the distance of one inch from the ear, four days later at a distance of four inches, the dressing remaining undisturbed, there being no evidence of inflammatory process other than that incident to the healing of the membrana tympani, and there having been no vertigo since the operation.

The two following cases are selected as evidence of the feasibility of an exploratory operation under the anæsthetic conditions above mentioned in unfavourable subjects, as both of the patients were nervously apprehensive women.

In the first case, Mrs. F. K., forty years of age, the operation was preceded by an injection of a two-per-cent. solution of cocaine through the catheter. The usual incision in the membrana tympani was made with the additional application of cocaine solution of the same strength to the cut edges, and at its completion the patient had an hysterical attack, followed by vomiting. The stapes was seen plainly through the opening, and on tactile examination was apparently firmly fixed; the descending process of the incus was also fixed by adhesions, but was movable. After these adhesions had been cut and the articulation of the stapes severed, the stapedius muscle was cut, the blunt hook engaged in the stapes and firm traction made; but the bone was found to be immovable, and traction was not carried to the point of fracture of the crura. There was no improvement in the hearing from the operation, but the vertigo and tinnitus were found to be decreased. All of the manipulations within the middle ear were well borne notwithstanding the generally unfavourable condition of the patient.

In the case of Miss E. T., fifty years of age, no cocaine was injected through the Eustachian tube, and the two-per-cent. solution was used only as a local application after the first part of the incision. The anæsthesia was apparently good and the manipulations within the middle ear (which included division of the incudo-stapedial articulation and of the stapedius muscle,

and traction upon a firmly anchylosed stapes) were conducted without pain. The paper dressing was applied and the wound in the membrana tympani was apparently healed at the end of three days. At the end of two weeks there was no evidence in the appearance of the membrana tympani that it had been incised.—*Boston Medical and Surgical Journal*, *April* 20, 1893, *p.* 385.

70.—ON THE SYMPTOMS AND TREATMENT OF SEPTIC INFECTION OF THE LATERAL SINUS.

By W. Arbuthnot Lane, M.S., Assistant Surgeon to Guy's Hospital.

[Mr. Lane gives the narratives of ten cases of septic infection of the lateral sinus on which he has operated. Eight of the cases recovered and two died. Mr. Lane reaches the following conclusions from the consideration of these cases :]

1. That septic infection of the lateral sinus is always due to the extension of an inflammatory process from an abscess between the bone and dura mater, through the wall of the sinus. Therefore, the symptoms which result from the infection of the blood in the sinus are preceded by, and are associated with, those due to the presence of a subdural abscess, or rather, to speak more accurately, an extradural abscess.

2. The symptoms which a subdural abscess presents are dependent almost entirely on the fact that the dura mater being involved, and the chief indication of this condition is deep-seated pain and headache, radiating from the seat of inflammation. Therefore, it is impossible to determine in many cases whether one has to deal with a patch of inflamed dura mater, without the existence of an abscess, the inflammatory process having extended from the antrum to the dura mater in its immediate vicinity, or with a case in which the inflammation has been more intense, and pus has already formed. In either case the patient derives immediate relief from operative interference, and though in the former case the degree of inflammation in the dura mater may not be sufficiently intense to result in the formation of pus, yet one has no guarantee that it will not develop, and then, if not removed, it will very probably terminate the patient's life.

3. A subdural abscess may cause death by producing a suppurative arachnitis, or, by infecting the contents of the lateral sinus, it may produce death by pyæmia. The abscess may, however, discharge itself through the antrum, middle ear, and meatus, or through the mastoid cells, or through the mastoid bone by absorption of the superjacent bone, or through the

opening for the mastoid vein. Still, this course should not be counted upon, and, even if it does take place, it is most advisable to perform antrectomy.

4. In a large subdural abscess, besides the presence of the deep-seated pain and radiating unilateral headache, you may have a varying degree of inflammation of the arachnoid cavity, producing symptoms of arachnitis. These vary considerably in severity, probably in a direct relation to the area and intensity of the inflammation, and are represented by headache in the lower and back part of the head, retraction of head, &c. When the dura mater is much inflamed optic-neuritis is usually present. The amount of deep pain and headache present in inflammation of the dura mater seems to bear a direct relation to the degree of inflammation and the extent of the area of this membrane involved.

5. Whether, in the case of a subdural abscess, the mastoid process be tender or painful on pressure depends entirely on its structure. If there be no mastoid cells, as is frequently the case the mastoid process may be pressed on or manipulated forcibly without the patient experiencing any discomfort. Even when this symptom is absent, if the mastoid process be struck smartly with a plexímeter, deep-seated pain and tenderness is at once experienced.

6. Whether a subdural abscess produces an infection of the contents of the lateral sinus or not depends, to a great extent, on the situation of the abscess. For instance, such an abscess in the posterior fossa may not overlie the sinus at all, or, on the other hand, its area may be very limited, so that its floor may be formed entirely by the outer wall of the sinus. A subdural abscess usually develops in a case of chronic purulent otitis, and complicates one of the many attacks of pain, &c., these patients suffer from. Rarely, however, it follows immediately upon a first attack of inflammation of the middle ear.

7. The symptoms of septic infection of the lateral sinus develop upon and are superadded to, those of subdural abscess. They consist solely of irregular, rapid fluctuations of temperature, very often amounting to a well-marked rigor, but not necessarily so. Of course, at a later period, other symptoms, due to the formation of secondary foci, &c., arise ; but before these appear, apart from these fluctuations in the temperature, there is no other symptom that I am aware of.

8. For the development of secondary foci elsewhere, it does not seem necessary that throughout the whole course of the case there should be any naked-eye evidence of thrombosis. Inflammation of the wall of the sinus, intense enough to cause only an opacity of the intima, may be sufficient to produce, and can continue to produce, secondary foci, even after the subdural

abscess, which originally determined the inflammation of the wall of the vein, has been thoroughly cleared out.

9. Unfortunately, too often septic thrombosis of the lateral sinus escapes notice till too late; for, as in the more simple antecedent condition—subdural abscess—the surgeon frequently expects to find tenderness or swelling of the mastoid process, pain on percussion, pain or swelling in the position of the internal jugular vein, &c., none of which are necessary symptoms of this condition. The explanation of this was fully pointed out in an abstract of clinical lectures on inflammation of the middle ear and its complications, published in *The Lancet*, September 26, 1891, and in other papers. It would seem usual that the less extensive the thrombus that develops, the more virulent are the clinical symptoms of septic infection, the thrombosis being apparently an effort on the part of the organism to lock up the intruding micro-organisms and destroy them. It occasionally happens that when there is obvious thrombosis of the lateral sinus, and clinical evidence of it as evidenced by the temperature, such thrombosis will cease to produce symptoms when the subdural abscess has been thoroughly evacuated by surgical interference, or spontaneously. In septic infection of the sinus, apparently without thrombosis, ligature of the internal jugular vein, after the subdural abscess has been evacuated, may stop the rigors only after the sinus has become thrombosed, but not till then.

10. Again, ligature of the vein and sinus in a case of septic infection, apparently without thrombosis, may not stop the progress of secondary foci, even though coagulation takes place in the sinus, owing to the extension of the septic process along the petrosal sinuses to the cavernous sinus.

11. When extensive thrombosis exists, it does not seem necessary to remove the whole of the proximal and distal portions of the clot. This was illustrated more forcibly still by a remarkable case published by Mr. Parkin, of Hull, in *The Lancet* of March 11, 1893. In that he found that the jugular vein was thrombosed beyond the lowest point at which he was able to ligature it.

12. The same case showed very well that the presence of secondary foci of septic infection does not preclude the possibility of recovery, provided the further supply of septic emboli be stopped.

13. However advisable it may seem to ligature the internal jugular vein beyond the limit of the thrombus, and perhaps to remove its proximal part, there is no evidence to show that the complete removal of the distal portion of the clot is necessary, or that leaving it produced any effect that was prejudicial to the health of the patient.

14. In spite of the variations in the activity and character of the conditions which result from septic infection of the lateral sinus, it would seem that the most scientific and most certain measure to adopt in every case is, after performing antrectomy, which is a necessary antecedent of every operation of this sort, ligaturing the internal jugular vein and clearing out the extradural abscess to remove as much as possible of the proximal portion of the clot, then the whole of the distal portion, or, if there be no thrombosis, to slit up the sinus beyond the limits of the abscess wall and plug it with gauze and iodoform.

I cannot close this paper without again expressing our indebtedness to Mr. Horsley for his original suggestion, which has opened up such a large field for operative measures, not only in cases of septic thrombosis, secondary to middle-ear disease, but also, as I have shown, in similar conditions in other parts of the body, all of which had for so long been regarded by surgeons as hopeless, and were consequently relegated to the care of the physician, who, with all his skill was unable to influence the course of events by drugs.—*British Medical Journal, September* 9, 1893, *p.* 561.

Obstetrics and Gynæcology.

71.—A CASE OF SYMPHYSIOTOMY.

By W. T. Smyly, M.D., Master of the Rotunda, Dublin.

As the case which I now report is the first in which delivery by division of the symphysis pubis has been successfully carried out in the United Kingdom, I think that it should be recorded. The only occasion upon which it was previously had recourse to was in 1782, when Mr. Welchman, of Knighton, in Warwickshire, delivered a woman of a putrid fœtus in this way. Why he should have selected this method in preference to craniotomy is difficult to understand. The woman's death was not due to the operation, yet the result has certainly deterred others from having recourse to it.

In France, where the operation originated in 1768, one successful case was greeted with enthusiasm, and was characterised as the result of inspiration. The Faculté de Médecine voted medals to MM. Sigault and Le Roi, and procured a pension for the former and his patient.

Sigault performed five operations with the loss of one mother and some of the children, by no means a bad record considering the general results of obstetric operations in maternity hospitals at that time. Its employment by others in unsuitable cases, however, soon brought the proceeding into disrepute, and it sank almost into oblivion. Its modern revival is due to Professor Morisani, of Naples, but its adoption by Professor Auvard, by Leopold and by Harris, of Philadelphia, have rendered it popular in France, Germany, and the United States of America, and their writings contain all that is at present known of this subject; I need not, therefore, repeat what they have written, but shall simply give an account of my own case.

The patient, Mrs. M., aged 43, was somewhat below the middle height, but without obvious deformity or sign of rickets. She had suffered for the past eight years from chronic articular rheumatism, which had latterly almost completely confined her to bed. Her first eight pregnancies had terminated naturally, but the ninth labour was difficult and very protracted. Her usual medical attendant—a practitioner of considerable skill

and experience—having failed to deliver her with forceps, sent her into the Rotunda Hospital, where a dead child was extracted.

Upwards of three years after she again became pregnant, and was admitted into the Rotunda on November 19th, 1892, labour having already commenced. On examination the abdomen was found to be pendulous, and the recti muscles widely separated. The uterus hung over to the left side, and the child presented obliquely in the second position, with its head in the right iliac fossa ; the os uteri was about the size of a shilling, and the membranes were intact. The sacral promontory could be easily reached by the finger, and the true conjugate of the brim, measured with Skutsch's pelvimeter was $7\frac{1}{2}$ centimetres, or about 3 inches. The presentation having been corrected, and a binder applied, the patient was directed to lie as much as possible on her right side. The labour pains were short and inefficient, and continued so throughout, in spite of hot douches. On November 21st the membranes ruptured, but little progress was made; at night morphine was administered hypodermically, and she had some sleep. During the two following days the os continued slowly to dilate, but the head did not enter the brim of the pelvis. On the evening of November 23rd, the fifth day of labour, the funis prolapsed, and meconium began to come away. The contraction ring could be easily felt a hand's breadth above the pubes, so that version was impracticable. The head was freely movable above the brim, with the sagittal suture in the transverse diameter. Forceps were applied, but grasped the head so unfavourably that I abandoned the attempt to deliver by their means, and determined to resort to symphysiotomy.

The patient was placed in the lithotomy position with the buttocks over the end of the couch and two assistants held her legs on either side. The mons veneris was shaved and, as well as the vulva and vagina carefully asepticised. The soft parts were divided with a scalpel in the usual manner, and the first finger of the left hand passed down behind the symphysis, along which a probe-pointed bistoury was guided. The edge of the knife had scarcely touched the cartilage when the bones sprang apart, tearing the soft parts beneath, including the urethra. The child was immediately and without any difficulty expressed by my assistant, and, though deeply asphyxiated, was resuscitated, and is now alive and well. It weighed $7\frac{1}{2}$ lbs. and measured 20 inches in length. A tolerably brisk hemorrhage followed the rupture of the soft parts, but was easily controlled by securing a few vessels. The urethra was restored by a catgut suture ; the ends of the bones approximated ; a few silk sutures closed the wound, which was dressed in the usual manner.

A firm bandage was applied around the hips, and the patient put to bed.

Convalescence was delayed by the formation of a bedsore, but she ultimately made a good recovery. The urethra did not completely heal, and there was incontinence of urine, but I was fortunate in being able to cure this by a subsequent operation. Excepting the rheumatic affection already alluded to, she went home in perfect health.

From the results of this operation in the 54 cases recorded in Dr. Harris's interesting pamphlet, it appears certain that it will take a permanent position amongst our methods of treating labour complicated by pelvic deformity. It has the double advantage of being easy of performance and successful in its results. If my case be added to those tabulated by Dr. Harris, there were, up to the end of last year, 55 cases with only one maternal and five fœtal deaths.—*British Medical Journal*, *April* 29, 1893, *p.* 885.

72.—SYMPHYSIOTOMY: MODUS OPERANDI.

By H. J. Garrigues, M.D., Consulting Obstetric Surgeon to the New York Maternity Hospital.

[The following description of the operation is taken from an important communication dealing with the whole subject of Symphysiotomy.]

Three assistants are required, one of whom gives the anæsthetic, the other two stand each on one side of the patient holding the knees and assisting at the wound.

Morisani operates with the patient placed across the bed. This is only possible with his very simple method of operating. For those who favour the long incision, and in view of the fact that nobody can know beforehand how much hemorrhage there will be and what other complications may arise, the removal to a table, as in all other serious operations, is necessary or desirable.

The operator sits on a chair, between the legs of the patient. During the first incision the legs may hang down over the end of the table or lie stretched out on the table, but during the incision of the symphysis the legs should be held bent in hip and in knee joint, moderately separated and with the feet high; and as this position is just as good for the incision of the skin and subcutaneous tissue, it is simpler to place the patient in this position at the beginning. Some have used leg-holders; on obstetrical grounds it seems, however, preferable to have them held by assistants so as to be able to have the angle between thigh and pelvis changed according to the requirements of the case.

Considerable interest attaches to the question about the place and the length of the first incision. It may be short, medium, or long; it may be below, above, or in front of the symphysis.

In 1833 Imbert, of Lyons, recommended to introduce a probe-pointed bistoury from the vestibule, on the flat, push it up behind the symphysis, turn the edge against the symphysis and cut through the latter from behind forward, avoiding to cut the skin.

In 1841 Carbonai, of Florence, made a small transverse incision sixteen lines above the symphysis, introduced a bistoury from above downward and cut from behind forward.

Morisani makes a longitudinal incision 3 cm. (1¼ in.) long in the median line, ending 1 or 2 cm. (½-¾ in.) above the symphysis. Hirst followed exactly Morisani's description. Jewett carried an incision of the same length down to the upper end of the symphysis.

Porak made an incision 5-6 cm. (2-2¼ in.), and laid the whole symphysis bare.

The small incision of Morisani, placed far away from the exit for the lochial discharge, has great advantage for protecting the wound against infection, but if there came an hemorrhage, as in my case and those of several other operators, it could not be attended to.

Most of the latest operators (Pinard, Leopold, Zweifel, Caruso, and myself) have made the incision 8 to 10 cm. (3 to 4 inches) long, beginning at the upper end of, or somewhat above the symphysis, and ending at the root of the clitoris or deviating to the left of the same.

This large incision extending down into the vulva has the drawback that the wound cannot be dressed strictly antiseptically, but it offers the immense advantage that the operator can see all he does, and can check hemorrhage in the most effective way. On the other hand, Morisani will probably be less exposed to hemorrhage.

Morisani recommends to cut sideways into the recti muscles, deep enough to make room for the index finger. This has been followed by several of the new operators (Caruso, Leopold, Zweifel, Hirst). Porak "detached the triangular ligament from its median insertions," which probably amounts to the same.

In my opinion this transverse incision is not necessary, and weakens the abdominal wall. If anything is wanted behind the symphysis, Hay's director has a curvature that just fits to the posterior surface of the symphysis. Its median groove will serve as a guide for the bistoury, and its width will protect the bladder effectively. Törngren's plan of guiding the instruments with a finger in the vagina would seem to be a good one. Truzzi advises in order to protect the bladder, to tampon with gauze wrung out of creolin emulsion, before cutting the symphysis.

It has been said by the older opponents of the operation that the symphysis may have such an abnormal position that it cannot be found, and several times "a piece of the os pubis has been sliced off." How operators have done this, unless they used a saw I cannot understand, and even if the separation was made in the bone instead of the cartilage, that need not produce caries with our modern wound treatment. But I cannot see under what circumstances the symphysis could be missed, if the operator bears in mind that it has a distinct notch both at the upper and particularly at the lower end.

The clitoris is inserted midway between the upper and lower end, and the meatus urinarius is situated just below the lower end.

After having made his longitudinal and transverse incisions, and introduced the finger down to the lower end of the symphysis, Morisani introduces *Galbiati's falcetta*, and cuts from behind forward and from below upward. To cut from behind has the advantage that we go away from the bladder; but suppose the head is more or less engaged in the pelvis, then the bladder may be so squeezed between the symphysis and the head, that it is impossible to find room for finger and falcetta. In such a case we would, of course, try to have the child lifted, which even may be necessary, when the head is above the brim and where the uterus forms a pouch descending in front of the symphysis.

But if it cannot be moved, it would be safer to cut from the front backwards, using great care when we got through the cartilage, and in severing the ligaments forming the symphysis behind. Morisani states likewise that he more than once has used a short probe-pointed bistoury, and cut the joint from the front backward.

To cut from below upward can hardly have any advantage. The urethra is easily held aside, and since the only serious hemorrhage that has ever occurred has always been at the lower end, it is best to leave this part of the incision to the last.

Leopold advises, in order to avoid hemorrhage, not to cut the subpubic ligament, and says that it is not even necessary to cut the whole symphysis, as a cut through the upper half, or three-fourths, allows the bones to separate 3 cm. ($1\frac{1}{4}$ inches). He says, also, that in his second case he did not cut the ligament, but since he had a separation measuring 6.5 cm. ($2\frac{1}{2}$ inches), it is certain that it must have been severed, whether he cut it or tore it. Zweifel had to cut all, since severance of the upper half of the symphysis only gave a separation of 1 cm. ($\frac{1}{2}$ inch) between the ends of the bones, and Freund found the same after cutting the whole symphysis down to the ligament. Von Velits cut the upper three-fourths, and Törngren the whole symphysis, saving the ligament, but in both cases all tore. Farabeuf cut the symphysis of a pelvis that had been for

several months in the dissecting-room, through the upper three-fourths, and found the remaining fourth and the subpubic ligament strong enough to support a weight of 30 kilogrammes. It may, therefore, be taken for settled that the *whole symphysis, inclusive of the subpubic ligament, shall be cut.*

According to Morisani, the instrument used for this incision is the falcetta, and Hirst, who first thought that a common probe-pointed curved bistoury would serve his purpose, quickly laid it aside, and was glad to avail himself of Galbiati's knife. This sickle-shaped instrument is introduced alongside of the left index finger, which is held against the posterior surface of the symphysis, down to the pubic arch. When the point has passed this, the handle is gradually pulled upward and forward.

I did not find any difficulty whatever in using an ordinary bistoury, and it was a very small instrument compared with Galbiati's. Jewett succeeded, likewise, with "a strong probe-pointed bistoury." For those who make Morisani's incision, I think the falcetta will prove the best instrument in most cases, but for those who prefer the long incision it is superfluous. A concave probe-pointed bistoury, for cutting from behind, and a convex scalpel, for cases in which the cut must be made from the front backward, are all the knives needed for cutting the symphysis. We have above seen that under some circumstances this may even be done in order not to wound the bladder. It would also be indicated when the symphysis forms a zigzag line.

Siebold found a synostosis, instead of a synchondrosis, and Velpeau has found the same twice. For this eventuality it is necessary to provide a chain saw. Stolz recommended, even, always to saw the bone a little to one side of the cartilage. He introduced the saw by attaching it to a slightly curved needle, which he introduced through a small transverse opening on the mons veneris, and pushed out between the crus of the clitoris and the descending ramus of the pubes. It would perhaps be better, in cases where bone has to be cut, to use chisel and mallet, as Albarran did, and as is used by other surgeons in operations on the joints. McKennan, of Paris, Ill., could not cut the symphysis with a strong probe-pointed bistoury, but severed it by means of a narrow probe-pointed metacarpal saw.

The urethra is protected against injury by being held over to the right side by means of a long metal catheter, which at the same time serves to keep the bladder empty.

The bladder and the vagina are guarded by the finger held behind the symphysis, or by passing a director. In some cases there will, as stated above, not be room for either. I think the bladder might also occasionally be caught between the ends of the pubic bones, when they are brought together at the end of the operation. This viscus contracts in two different ways.

Either the fundus falls down on the base so that, together with the urethra, it forms a Y, or the posterior wall is pressed against the anterior so that the canal is more like a C. In the latter event it rises, of course, higher up. During parturition it is even in part pushed and drawn up above the top of the pubis. It is therefore clear that in certain symphysiotomies it must be in great danger of being wounded.

The vagina may also be wounded or caught between the bones, but even if a vesico-vaginal fistula should occur, the evil is not great. Several times it has healed spontaneously, and in one case Morisani closed it by a subsequent operation.

The sacro-iliac joints must also be borne in mind. Müller-heim advises to surround the pelvis with a thick rubber tube immediately after cutting the cartilage. Zweifel tried it, but found that it slipped up. It is better to have the assistants press moderately on the trochanters, and in this way prevent too great a strain on these articulations. The soft parts should be held apart during extraction, and the distance between the ends of the pubic bones measured exactly. It is also in the interest of these joints to leave the birth of the child to Nature after cutting the symphysis, but we shall presently see that there are serious objections to this plan.

If it is necessary to guard against injury to the sacro-iliac joints of the mother, it is, on the other hand, often necessary, in order to make room for the child, to lessen the pressure on the trochanters, or even to *press on the bent knees or pull on the ilium.* When we see how often the child has been delivered in an asphyctic condition, and take the cases into consideration in which it died, this side of the operation does not seem hitherto to have received the attention it deserves. The ends of the bones should be held apart at least $1\frac{1}{2}$ inches (4 cm.), and more if delivery meets with difficulty. We know that a distance of $2\frac{3}{4}$ inches (7 cm.) is perfectly safe, and that we may even succeed with a greater separation. To use the child as dilator increases its danger very much, without corresponding advantage to the mother.

When the symphysis has been separated the wound should be stuffed with gauze, impregnated with some antiseptic substance. Creolin ought, perhaps, to be preferred on account of its hæmostatic properties.

A point of great importance to settle is the question in what way, if any, labour shall be furthered beyond cutting the symphysis. Morisani leaves the case to Nature if the pains are good, and looks upon this as one of the reasons why modern operations have been more successful than the old. But in about one case out of four, traction with *forceps* has been found necessary to complete delivery. In my case there were no

labour pains at all, so that some intervention was necessary. Perhaps, sometimes, the waters may be broken and the head pushed down from above, and then seized by forceps or shelled out by pressure through the rectum (Freund, Jewett). Our child was in a precarious condition, as shown by the meconium in the liquor amnii, before any mode of delivery was attempted, and it is doubtful whether a high forceps operation could have been performed more expeditiously than turning, and would have saved its life.

The fact that several operators have met with considerable hemorrhage makes me think it safer to deliver. It is also an advantage to do so while the patient is anæsthetised. But the opinion of a man with Morisani's experience must, of course, as yet have much weight.

Morisani does not mention *version* at all. I think, if we decide to deliver artificially, the common rules ought to be followed ; forceps for engaged head, turning for head movable above brim. In Harris's last list of forty-four cases version was performed four times with presenting head, saving all mothers, and all children born alive (in one of induced labour it died on the third day).

Under rare circumstances, even other operations may become necessary now, just as they did in former years, such as embryotomy of the dead child, or even Cæsarean section in case it is living and cannot be delivered *per vias naturales.*

It is quite remarkable how often the child is born *asphyctic.* Everything needed for its revival should, therefore, be prepared beforehand.

In my case the placenta followed the extraction of the child immediately. If it did not come soon, say within a quarter of an hour or twenty minutes, it would be better to loosen it artificially before closing the wound.

After the birth of the child and the removal of the placenta, the bones should be brought together by pressing on the trochanters. Leopold inserted three silk sutures through the cartilage. Zweifel used four threads of silkworm-gut with a needle at both ends. I put them only through the fibrous tissue covering the bone in front ; but I think this whole use of buried sutures is superfluous. All that is needed is to carry the deep sutures through the skin, adipose and fibrous tissue down to the bone, and take in about $\frac{1}{4}$ to $\frac{1}{2}$ inch of the latter on either side. When all are in place, the trochanters are pressed together, *taking particular care to ascertain that the bladder and the vagina do not get in between the ends of the bones,* and all the sutures are drawn tight and closed from above downward. One or more superficial sutures may be needed for a perfect adaptation of the edges. Silk answers every purpose. Silkworm-gut

is rather short ; silver wire causes more pain in being removed.

The whole wound is closed without providing for any drainage, which can always be done later if there should arise suppuration in the depth of the wound.

Porak removed the sutures already on the sixth day; I partially on the sixth and partially on the ninth day; Pinard on the eighth; Von Velits on the fourteenth day, and Leopold on the seventeenth day.

The chief way in which the bones are kept together is by means of pressure on the trochanters. If elastic pressure is wanted, Martin's roller bandage of solid rubber would seem more appropriate. Jewett used a firm muslin binder. Morisani recommends a bandage painted with water-glass ; Pinard used plaster-of-Paris ; Freund a starched bandage lined with cotton. Many (Zweifel, Von Velits, Leopold, Morisani) have used a strap with buckles. The best of all, I think, is our excellent rubber adhesive plaster as used by Hirst, Michael, and myself. It insures absolute contact, is waterproof, and preserves the patient from pain in being moved. In my case the patient had to be lifted on the bed-pan every three hours, on account of the vaginal injections, but it did not hurt her.

The patient should lie with outstretched legs, not bent over a roll, as this straight position in itself brings the ends of the pubic bones together, and the knees should be prevented from separating so much that it has any influence on the symphysis.

In my own case there was found perfect union on the twentieth day, and it had perhaps already been there for some time. Leopold could move the legs of his patient on the seventeenth day without causing pain. At all events it seems to be safe to *let the patients get up by the end of three weeks, and they may, as a rule, be dismissed at the end of a month.—The American Journal of the Medical Sciences, April*, 1893, *p.* 404.

73.—ON A CURE FOR "INCURABLE" METRORRHAGIA.

By James Braithwaite, M.D., Obstetric Physician to the General Infirmary at Leeds.

In November, 1889, I saw with Mr. Holmes, of Burmantofts, a woman said to be suffering from endometritis. She was the wife of a miner, 34 years of age, and had had four children the last 10 years previously. Menstruation was very profuse, and in the intervals she passed, to use her own words, "blood and corruption." The case had been for a long time in the hands of a medical man who had preceded Mr. Holmes in the care of the

case. The patient was ultimately taken into the Infirmary, as the loss of blood, which was the principal symptom, became greater. The uterus was, by the passage of the finger after dilatation, ascertained to be empty. The sound passed only two inches and a half. The uterus was exquisitely tender to touch. After exhausting all treatment likely to be of use, including very free curetting and the application of perchloride of iron to the uterine cavity, I ultimately in September of the following year removed the ovaries and tubes, with the view of arresting the loss of blood and relieving the pain. The patient was by this time a confirmed invalid. The tubes were in a state of chronic inflammation and the ovaries adherent, but not to the eye diseased in their interior. The patient after this improved, and was by the end of three months able to do her housework. She then fell downstairs, and hemorrhage from the uterus recommenced. She was again admitted to the infirmary, but in spite of the use of perchloride of iron again, and subsequently fuming nitric acid applied to the uterine cavity, a daily hemorrhage continued. I felt completely defeated, and contemplated hysterectomy ; knowing, however, the powers of chloride of zinc from constantly using it in the treatment of cancer, it occurred to me to apply this to the uterine cavity with the view of causing a slough of the interior, and so completely obliterating it. I therefore, after dilating the cervical canal once more, applied to the whole interior cotton wool wetted with the thickish fluid resulting from deliquescence of the sticks of solid chloride. This was wound round a piece of iron wire slightly curved at the end. The length of the cavity was first measured, and the wool and chloride adapted accordingly ; but the fluid was more sparingly spread on the wool at the proximal end, and it was so applied that it could not run off and overflow. The wire with its burden of wool was left *in situ* for 24 hours, and then withdrawn. In the course of a fortnight a slough of the whole interior of the uterus came away about a quarter of an inch thick. The cavity became after this completely obliterated, and the uterus correspondingly smaller and more shrunken in size. This of course cured the hemorrhage, for there was no longer any place to bleed from. The patient was discharged much improved in health. As she had already undergone oöphorectomy, the loss of the uterine cavity was of no importance, but I can easily see how different the case would have been if the ovaries had been still active and intact. On reflecting upon this case it seemed to me that we might produce an action short of obliteration of the cavity by the use of this remedy, and consisting of merely a superficial removal of the surface to a very slight extent, in cases of a desperate character in which other remedies failed.

On October 23, 1892, I saw with Mr. Pickles, of Leeds, the wife of a tradesman, 55 years of age. There had been no menopause or any signs of it; on the contrary, she had menstruated regularly every month up to April, 1891. The periods then commenced to be excessive, lasting fourteen days, and sometimes only one week clear. This had gone on more or less until I saw her, but the hemorrhage had become continuous. The uterus was freely curetted after dilatation. Nothing was removable except by such forcible pressure as to scrape away the mucous membrane itself. The organ was not materially enlarged, the sound passing two and three-quarter inches. The finger exploring the cavity detected nothing, and bimanually no irregularity of outline or indication of fibroid could be detected. Chloride of zinc was applied to the interior for a few minutes, but the effect was found to be transient and ineffectual. Ultimately, on February 21 last, the zinc was used with the object of destroying the interior and producing atresia. On April 14 I received a letter from Mr. Pickles to say that he found the interior of the organ quite closed. The patient was much better in consequence of the cessation of the hemorrhage. I have had a number of cases in which the zinc has been applied for a few minutes only, but although a powerful styptic I have found it not permanently successful. It must either be used to produce atresia or not at all. Of course cases of such intractable hemorrhage as to require such a remedy are very rare, and the remedy is, to a certain extent, an empirical one. It can only be applicable when a cause sufficient to explain the hemorrhage cannot be found, and when the latter becomes dangerous to life. Still there are such cases, and there are a certain number on record in which the uterus has been removed entire after failure of all other treatment. The effect of atresia on the uterine cavity may be expected to be very different from that of removal of the uterine appendages. In the latter case the menopause is artificially induced, and consequently the system produces a less amount of blood than before the operation. When, however, the ovaries are not interfered with—as in the zinc treatment—the formation of blood continues undisturbed, and consequently it is more suitable when the system is exhausted by hemorrhage. When a woman has bled beyond a certain amount she never recovers it completely, but remains anæmic and more or less an invalid for life. This plan of treatment affords a means of recovering the loss, for the formation of blood will continue as before. It is very important to use the thick fluid only which results from the deliquescence of the sticks; and it must have recently deliquesced, otherwise much of the zinc will be deposited and lost as carbonate. It is very liable to run over and into the

vagina, and if so will produce a slough. To avoid this a plug of cotton wool containing vaseline and carbonate of soda should be applied at the summit of the vagina; this quite neutralises any excess. Finally, I may say that in this treatment we have a resource—an ultimate resource—after the failure of everything else except hysterectomy; safe in application and effectual in accomplishing its ends, but in itself undesirable and to be avoided unless life and health are very seriously threatened.—*The Lancet, June* 3, 1893, *p.* 1315.

74.—ON RESECTION AND IGNIPUNCTURE OF THE OVARY.

By S. Pozzi, M.D., Paris.

[The following is an excerpt from Professor Pozzi's address on The Conservative Treatment of Diseases of the Uterine Appendages, delivered in the Section of Obstetrics of the British Medical Association.]

Before giving a summary of my personal observations, and recalling to notice what has been done elsewhere in the same sense, if not by following the same technique, it is necessary to state precisely in what conditions and within what limits conservative surgery of the uterine appendages may be practised. In fact, I believe that all chances of success depend upon this starting-point. My meaning will be better understood by an example.

When, after the operation of laparotomy in response to clinical indications, we find ourselves in presence of lesions which have profoundly disorganised the appendages, as for instance, a pyosalpinx with abscess of the ovary, or, again, an entire cystic transformation of the ovary, and parenchymatous alteration of the Fallopian tube, it goes without saying, the only thing practicable is ablation. But in many cases operators practice extirpation for less serious lesions.

Suppose the case in point to be hydrosalpinx, with relative integrity of the ovary, simply strewed with small follicular cysts of the size of a pea; or else suppose the Fallopian tube to be found intact and permeable in all its extent, while the ovary alone is found to be attacked by diffuse ovaritis, sclerosis, and microcystic degeneration, or containing cysts larger but limited. Certainly in cases of this kind total extirpation may appear too radical a procedure. In point of fact, a certain quantity of normal ovarian tissue still remains, and the Fallopian tube is permeable, or susceptible of becoming so.

We may then conceive the hope of preserving a part of the ovary, and restoring the functions of the oviduct in re-establishing its orifice and calibre. The first of these hopes has led to the performance of partial resection of the ovary; the second has given birth to salpingostomy, or re-establishment of an artificial ostium, by partial resection of the Fallopian tube.

I hasten to say that I have no faith in operations performed with the hope of restoring the functions of a diseased Fallopian tube. I believe that once having been attacked by acute inflammation it has become definitely incapable of fulfilling its physiological *rôle*. The abdominal aperture may be reopened by detaching the agglutinant fringes, or even an artificial orifice created at the side of the normal one now obliterated, as Skutsch and Martin have done; but I believe this work to be useless, as is easily proved by the following considerations. In the first place the calibre of the Fallopian tube, momentarily re-established by catheterism, will always have a tendency to be obliterated again; also, even were the calibre to remain fixed, it would not suffice to assure the migration of the ovules. The *rôle* of the Fallopian tube is not that of an inert duct; this tube is essentially active: the integrity of its texture, the persistence of its vibratile epithelium, and its contractile fibres, are conditions indispensable to its function. Thus an inflammation of some duration must surely destroy or definitely paralyse these active elements.

For these reasons I eliminate partial resection of the Fallopian tubes from the number of conservative operations. I believe that these may be attempted only when the Fallopian tube is healthy, the ostium open, and its calibre permeable. In other words, I consider partial operations justifiable for the ovary only.

I shall not be long in demonstrating that a small quantity of ovarian tissue suffices to assure the regularity of menstruation and to permit fecundity. The richness of ovules in this organ is well known; however small may be the fragment preserved it contains several thousands of germs.

Here we have, however, more than theoretical considerations to bring forward. In the case of partial resection of the ovary the persistence of menstruation is constantly remarked, and several observations prove that its fecundity is preserved. In the first observation, that of Schröder, the patient was a woman upon whom he had practised the ablation of an ovarian cyst on one side, and partial resection of the other ovary containing a dermoid cyst. The woman became pregnant shortly afterwards, and was delivered at term. More recently A. Martin has observed several women become pregnant after the ablation of one ovary and partial resection of the other. What gives intrinsic value to Martin's observations is that they bear

upon a series of twenty-seven partial resections of the ovary, observed during a period of five years; during this short period of time one patient in three became pregnant. On the other hand, Martin had one death and two recurrences of the morbid symptoms.

It remains to be determined in what cases of lesions of the ovary a partial operation may be made, and to decide the nature and technique of this operation. I would establish as a general rule that whenever the Fallopian tube is healthy, and the ovary alone diseased, we must endeavour to preserve a part, and only at the last extremity resign ourselves to a total sacrifice.

The most favourable cases are evidently those in which the diseased process has affected one region of the ovary, leaving an entire segment of the organ intact. The typical lesion, and that which can leave no doubt in regard to the persistence of the functions of the remainder of the ovary, is an isolated cyst (dermoid, proligerous and follicular cysts). In these cases the the operator must, in the first place, ascertain that the Fallopian tube is completely permeable by introducing a stylet through the ostium, and pushing it as far as the uterine cavity. This manœuvre is accomplished with the greatest facility. In the second place, while the assistant fixes the ovary between his fingers, the surgeon performs the resection of the diseased parts by two incisions, which circumscribe a cuneiform segment. The two lips of the wound are reunited by the aid of a continuous suture in catgut, which guarantees simultaneously coaptation and hemostasis. Should this not be complete, it can be obtained by adding a few stitches deeper, either with catgut or fine silk. It suffices, further, to hold the ovary for a few seconds compressed in an aseptic compress to cause the cessation of the oozing, due to the needle puncture.

Again, we may have recourse to the resection of a segment of the ovary in cases of microcystic degeneration, in which the disease has left a zone of ovarian tissue intact. It is then frequently found that the whole convexity of the ovary is covered with little transparent or bluish specks, characteristic of the presence of small serous or hæmatic cysts, whilst in the region of the hilum a band of tissue exists untouched by disease. An incision can be made along this line, removing the greater part of the ovary, but preserving the base of the organ, and uniting the lips with a continuous suture of catgut. Such was my method of procedure in my first operations. I have now added a complementary manœuvre, the fixation of the ostium of the Fallopian tube upon the ovarian stump by means of a few points of suture. This salpingorrhaphy is designed to prevent the Fallopian tube from falling away, so to speak, from the rest

of the ovary, and contracting adhesions which would render the conservative operation useless. This suture is particularly indicated when it has been found necessary to liberate the Fallopian tube in tearing off adhesions capable of being reproduced.

Latterly I have modified my method, and practised ignipuncture instead of resection. When the ovary presents dispersed lesions such as cysts of small volume, it is much more expeditious, and doubtless more efficacious, to substitute the cautery for the sharp instrument. By the aid of sight and touch it is easy to discover all the transparent and depressible points on the surface of the organ. These small cysts are opened successively by the small knife, or thermocautery, and burned on their internal surface. When we find ourselves in presence of a diffuse ovaritis, where the ovary has increased in volume, and there is infiltration of liquid, it is advisable to make the point of the thermocautery penetrate rather deeply into the œdematous stroma. We may thus hope to modify advantageously the embryonic proliferation tissue, which is diffused in every direction, as is indicated by the microscope in cases of this kind. There is no doubt, in fact, that the action of the actual cautery produces a distinct modification, and acts, as said the ancients, after the manner of an energetic melting of the chronic inflammations of the ovary, as in those of other tissues.

I admit that certain objections may be raised. Is there not the danger of creating scarred nuclei on the surface, or even in the depth of the organ ; of inducing sclerosis, which is our aim to cure, and of provoking the formation of new cysts by obstructing the normal development of Gräfian follicles ?

I might be excused from answering this objection by invoking the results already obtained by my operation, but they are too recent to be considered as conclusive. It is, then, expedient to examine carefully the theoretical objections which I have mentioned.

Can the actual cautery occasion sclerosis? Assuredly this might be the case were the cauterisation followed by the falling away of the eschar from suppuration and granulation. But in the interior of the peritoneal cavity the process is quite different; it is essentially aseptic. The eschar is re-absorbed molecule by molecule, without inflammatory process or embryonic proliferation susceptible of becoming a nodule of fibrous tissue.

On the contrary, the results of clinical observation lead us to suppose that the irritation produced by the actual cautery in the heart of tissues already attacked by sclerosis favours their reabsorption. This is what happens. The plastic exudations surrounding an articulation or diseased bone are pierced by ignipuncture.

Can ignipuncture induce microcystic degeneration of the ovary? How is this possible? One can conceive that the action of the cautery, bearing upon an organ containing glands in clusters, as the cervix of the uterus, may obliterate the mouths of some of these glands, and bring about their cystic transformation; but here it is a question of closed follicles, and all those not traversed by the cautery may develop freely. It seems to me that this does away with arguments which might be invoked *a priori* against ignipuncture of the ovary. Moreover, this question can only have a momentary interest, and the last word belongs to experience, already so prosperously begun.

I come now to the result of my practice in conservative operations of the ovary. I have performed resection of the ovary six times, and ignipuncture eight times. All my patients have recovered perfectly and rapidly from the operation. In all, either immediately or later, the pains ceased or were greatly diminished. I have had no persistent recurrence among these patients. In those who before this menstruation was irregular the menstrual flux has returned with greater abundance, and this result, which appears paradoxical, seems to me due to the amelioration of the general health.

Finally, one of my patients is pregnant, three months. I must say a few words respecting her case. The operation was performed on December 22, 1892. I had made twelve deep points of ignipuncture in the left, and eleven in the right ovary. The ovaries were white, smooth, and enlarged as the kidney in Bright's disease, and affected with diffuse ovaritis. The symptoms presented by the patient before the operation were continuous pain, with severe exacerbation at the moment of menstruation. They have disappeared since the first menstruation which followed cauterisation of the ovaries.

Among the patients operated on by ignipuncture I have performed complementary fixation of the uterus or hysteropexy three times to remedy a retrodeviation of the uterus. The entire duration of the operations in these two cases did not exceed half-an-hour. My first puncture of the ovaries dates from December 16, 1892. I believe I am the first who has practised it systematically and worked out its *technique*. One must not limit one's self to opening cysts, but cauterise their internal surface carefully, and penetrate deeply into the ovarian tissue if œdematous.

In resection of the ovary my experience is longer. I first performed resection of the ovary on May 9, 1891, more than two years ago. The second operation was on July 3, 1891; the last, and sixth, on February 10, 1893. Thus the first two patients have been under observation for more than two years. They are cured of pains which, before this, had made them invalids. I have seen them again recently; both are in flourishing health,

and their menstruation is satisfactory, although both have only about a third of the right ovary, and the left has been entirely removed.

I have practised complementary hysteropexy upon one only out of my six patients. Upon four I have practised salpingorr haphy, or suture of the Fallopian tube to the uterine stump. (I have also been the first to indicate this modification of *technique* which I think important in cases of broken adhesions). In five out of my six patients I removed the uterine appendages on the side on which I did not perform resection.

To summarise my results: Fourteen women in whom I have performed conservative operations on the ovary have all recovered from the operation; all have been completely cured or immensely improved. In each case menstruation has continued, and one of them has become pregnant. My experience is recent, and extends over a period of a little more than two years. The results are, however, very encouraging, and, taken together with those of Martin, may serve to encourage operators in a new path.—*British Medical Journal*, *September* 16, 1893, *p.* 619.

Food-Stuffs, Instruments, &c.

The Anglo-Swiss Condensed Milk Co. have sent to us samples of their *Milkmaid Condensed Milk*. The importance of securing to the general public that the milk supplied to it shall be of the best quality and of the highest nutritive value, is admitted on every hand and especially where the food-supply of infants and nurslings is in question. We fear that during recent years, many inferior qualities of milk in its condensed form have been supplied to the public with more or less damage to the health of the infant community. The many advantages possessed by condensed over fresh milk for the feeding of infants, has made the demand for the former so universal and so great that milk deprived of a large percentage of its natural fat, has been readily substituted for that containing a proper proportion of this most important constituent of the natural food of infants. *The Milkmaid Condensed Milk* is undoubtedly prepared from milk containing all its natural constituents in proper quantity, and is in every way a perfect substitute for pure fresh milk, and has this inestimable advantage over it that it is at the time of using a perfectly sterilised fluid and of constant composition. The Anglo-Swiss Condensed Milk Company's preparations are free from all foreign substances, except the necessary amount of cane sugar used in the process of condensation. We are able to speak very favourably of the Milkmaid Condensed Milk as being what its manufacturers claim for it—a pure unadulterated milk of the best quality in every respect.

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Cadbury's Cocoa Essence.—This preparation more than holds its own, and continues to gain in favour with the public and the profession. It is known to be absolutely pure and to

have no superior for wholesomeness, cheapness and palatableness. The makers continue to give special attention to the preparation of it, and not only guarantee that it is unadulterated, but that only the finest cacao is used in making it, and that they allow no chemical addition of any sort to deepen its colour. To Cadbury Brothers is unquestionably due the credit of making nothing but absolutely pure preparations of this pleasant and invigorating beverage.

Coca-Tonic Champagne (Laurent Perrier).—This is an excellent, sound, and perfectly dry champagne of a well-known brand, and supplies in a most agreeable and desirable manner, a mixture of the two powerful stimulants, coca and alcohol. It contains a known quantity of the alkaloid cocaine. The wine is perfectly free from sugar and combines all the qualities of a high-class and elegant wine with the advantages of a powerful nervine tonic and restorative. For diabetics and all to whom a perfectly dry wine is an absolute necessity the Coca Tonic Champagne will be found of the greatest value. Sole consignees: Hertz & Collingwood, 4, Sussex Place, Leadenhall Street, London, E.C., who will send descriptive pamphlet and particulars on application.

Invalid Bovril is a special preparation of the well-known beverage for use in cases of illness. It is a readily-prepared and most efficient substitute for Beef Tea, while it is free from the risks of putrefactive change to which Beef Tea prepared from the fresh meat is so liable. It is economical, very palatable, and highly nutritious. Invalid Bovril will take a high place amongst the various forms of ready-made fluid foods.

Johannis Water (Johannis Company, 25, Regent Street, W.) is a natural aerated water, charged only with its own natural gas. It is an excellent and most agreeable table water of great purity, and is one of the best diluents of spirits and milk. We can confidently recommend it for use at table or in the sick room.

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Under the form of Johnston's Ethereal Antiseptic Soap, Messrs. Parke, Davis & Co. have introduced to surgeons especially, but also to physicians, an exceedingly elegant and convenient cleansing and purifying agent for hands and instruments. It is portable, fragrant, non-irritating, a reliable deodorant and disinfectant, and works equally well with hot or cold water. We have used it for general as well as for medical purposes. Therapeutically, in cases of acne, seborrhœa of the scalp, and some kindred disorders of the grease secreting

structures of the skin, we have ordered its use with most gratifying effects. Johnston's Ethereal Antiseptic Soap is a distinct acquisition to the toilet service of the surgeon and to the resources of the dermatologist.

The uncertain and varying strength of the official galenical preparations of many of our most useful and potent drugs derived from the vegetable kingdom not infrequently restricts us in their use when we most wish to employ them. Messrs. Parke, Davis & Co. have made a most commendable effort to relieve us of this disadvantage in supplying us with their Normal Liquids. Normal Liquids are really standardized fluid preparations of vegetable substances. Such universally used drugs as Ergot, Digitalis, Belladonna, Cannabis Indica, Colchicum, Coca, and Conium, and of which the Pharmacopœia supplies no standardized preparations, are supplied in this form in the Normal Liquids. The Normal Liquid is so prepared that each cubic centimetre is equivalent to one gramme of a drug of standard strength. As there is no standard of strength for many of the active drugs, a provisional standard has been adopted by the manufacturers in the case of Normal Liquids, based upon their own assays and upon the statements of the best authorities. There can be no doubt that Messrs. Parke, Davis, & Co. have made a most valuable and scientific advance in pharmacy in producing these standardized preparations. We have used the Normal Liquid of Ergot, and have found it to be an excellent preparation in every way.

Liquor Sedans (Parke, Davis & Co.) is an aromatic mixture having for its more active principles, hydrastis, 60 grains; viburnum, 60 grains; and piscidia, 30 grains, to the ounce. In certain disorders of the uterine functions such as painful menstruation it has been found to be of great utility. Such a palatable and efficient combination of useful drugs will be acceptable to the gynæcologist.

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Messrs. Parke, Davis & Co. have also introduced a Compressed Tablet of Mercuric Iodide, from which a solution of mercuric iodide is readily prepared. One tablet dissolved in a pint of

water makes a thoroughly efficient and safe antiseptic spray for the treatment of the throat in scarlet fever and diphtheria.

In their Emulsion of Pure Norwegian Cod Liver Oil with Hypophosphites of Lime and Soda, Messrs. Parke, Davis & Co. introduce a formidable competitor with Emulsions of Cod Liver Oil already in the market. It is, so far as we can judge after examination, a perfect emulsion, does not become rancid on keeping, and is unusually palatable. We have given it with much acceptance both to children and adults. It has the advantage over many of its competitors in that it is prepared according to a published formula, so that the practitioner knows exactly what he is using.

For some time we have been very favourably impressed with the great advantages possessed by the Glycerine Suppositories manufactured by Messrs. Parke, Davis & Co. over those of the ordinary shape. They are more readily introduced and more easily retained, and so are generally more efficient in their action and more acceptable to patients than those of the primitive form.

Of the many preparations of Pepsin before the profession our experience warrants us in selecting those of Messrs. Parke, Davis & Co. for special remark. Tested by their digestive action upon proteid matter, they are found to be of the highest efficiency, and in practice they have yielded most gratifying results. Glycerole Pepsin contains the ferment in a permanent form and is miscible in all proportions with the ordinary solvents. It is certainly one of the most convenient and effective forms of the digestive with which we are acquainted.

Invalid Bovril.—The distinguishing feature of ordinary Bovril is the presence of the entire nourishment of beef in an easily digestible form, and to our mind this leaves little room for improvement. It is explained, however, that the "Invalid Bovril" is free from seasoning of any kind, and that the all-important constituents of the meat used (viz., albumen and fibrine) are passed several times through fine silk, so that only the most minutely sub-divided particles constitute the solid material of this excellent preparation.

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